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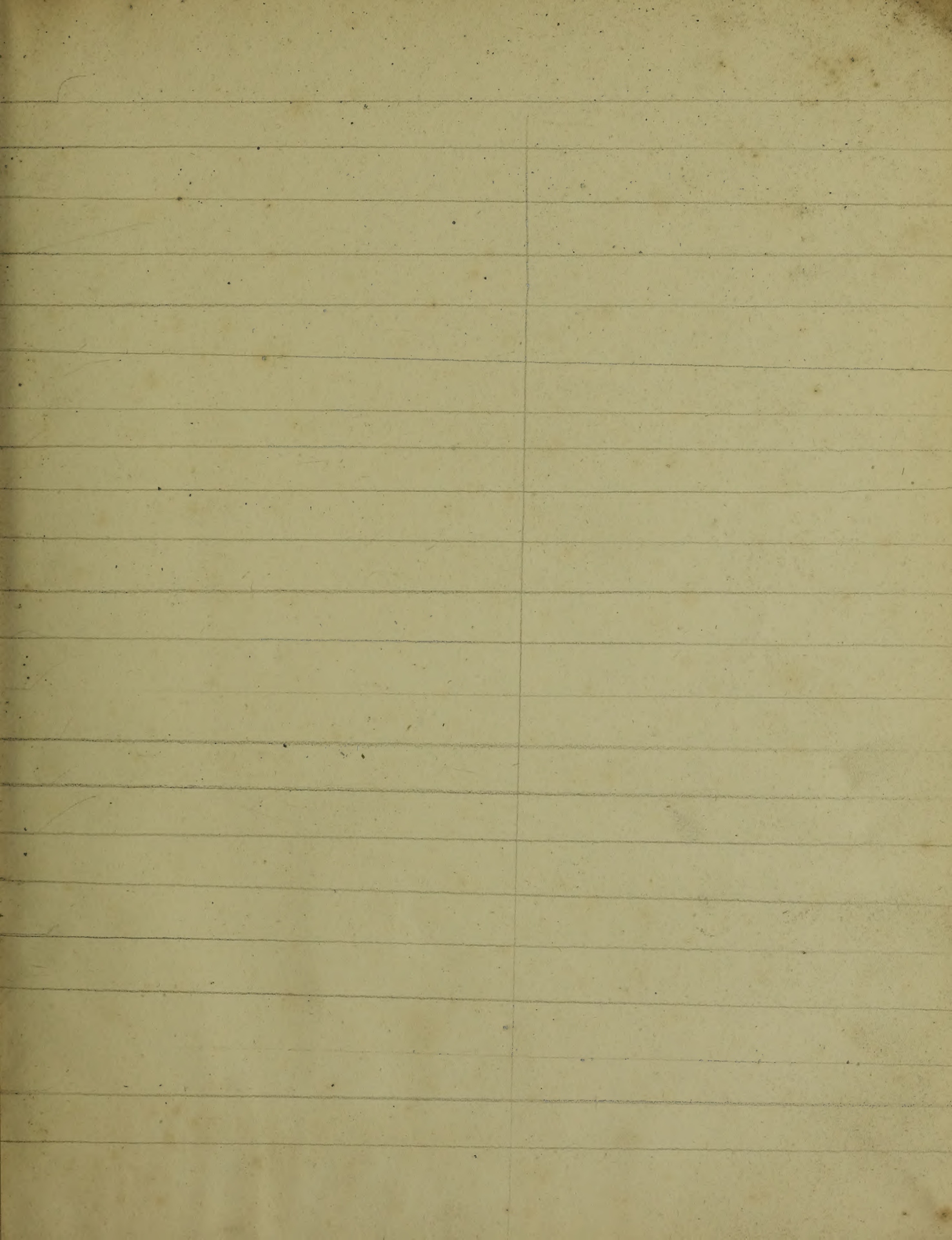
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ENCYCLOPÆDIA LONDINENSIS;

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UNIVERSAL DICTIONARY

ARTS, SCIENCES, and LITERATURE.

P A T H O L O G Y.

PATHOL'OGY, *f.* [from the Gr. *παθος*, suffering, and *λογος*, a discourse.] The science or doctrine of diseases.—This tree may naturally be conceived to have been under some disease indisposing it to such fructification. And this, in the *pathology* of plants, may be the disease of superfoliation mentioned by Theophrastus. *Sir T. Browne's Miscell.*—That part of medicine which relates to distempers, with their differences, causes, and effects incident to the human body.

As **PHYSIOLOGY** teaches the nature of the functions of the living body in a state of health; so **PATHOLOGY** relates to the various derangements of these functions which constitute disease. Its objects, therefore, are to ascertain the various symptoms which characterise the different disorders of each organ of the body, and especially the *diagnostic* and *pathognomonic* symptoms, which afford the means of discrimination between diseases that resemble each other; to determine the causes, both predisposing and exciting, by which diseases are induced; to point out the *prognosis*, or the tendency and probable event of each disease, from the changes and combination of the symptoms; and lastly, to teach the *indications of cure*, and the nature and operation of the remedies adapted to the various circumstances and periods of disease.

The study of pathology presupposes an intimate acquaintance with anatomy and physiology; or, in other words, with the structure, laws, and operations, of the animal body in a state of health. An observance of the signs or symptoms which denote a deviation from this state, constitutes the first branch of medicine, or *symptomatology*: an acquaintance with the usual concatenations observed by those signs, *diagnosis*. *Nosology* regards the arrangement of these signs or symptoms; and *etiology* applies to the cognizance of their causes, whether external or internal. The application of the properties of inanimate matter to the removal of these causes, or signs, is denominated *therapeutics*. The substances used for this latter purpose are termed *materia medica*.

Before entering into any further examination of these subjects, it will be necessary to give a short sketch of the history of this art; in the course of which it will be seen, that its professors have been employed for the most part in endeavouring to explain the phenomena of disease and the operation of remedies according to the principles of some favourite or fashionable study. Thus mechanics, chemistry, and metaphysics, have each in their turn formed the basis of celebrated medical theories: theories long since exploded, but of which the recollection may serve as beacons to warn us from the like errors. It is not, however, for this purpose only that the writings of the ancients merit our regard. The perusal of them enlarges the field of our experience; we often find in them,

remarks which serve to explain anomalies in disease, and descriptions which their beautiful and forcible language renders more interesting, and imprints more firmly on our minds. They likewise furnish hints for the further prosecution of inquiry, by showing the various lights in which the same circumstances have been viewed by different men; and the long chain of facts they display to our view enables us in some measure to appreciate the effects of climate, diet, and even manners, on the constitution of our species. It may be remarked moreover, that scarcely any system of medicine has been framed, however absurd, which has not contributed, by the spirit of investigation it excited, and by the new stock of facts its establishment necessarily developed, to advance the progress of the art.

RISE AND PROGRESS OF MEDICINE.

THE origin of the medical art is involved in great obscurity: yet, its antiquity is undoubtedly great, since, from its intimate relation with the life of man, the discovery of it must have been coeval with that of the most simple mechanical arts.

The little we know of the earliest history of our race, leads to the supposition, that surgery was the first branch of medicine cultivated. While mankind subsisted principally by hunting or fishing, they must, of necessity, have been subjected to a variety of accidents; fractures, luxations, &c. must have been frequent among them, and to cure or alleviate those obvious maladies must have been their first care. It is impossible to conjecture what means were pursued for the attainment of this end, yet, it is natural to suppose, they were, for a long period, very inefficient, and that the knowledge acquired in this state of society was very confined. It is probable, however, that anatomy was not wholly neglected in this barbarous age. The frequent slaughter of wild beasts, and the various purposes of food, raiment, &c. to which their different parts were appropriated, must have led to a cursory acquaintance with the structure of those animals; and thus laid the foundation of comparative anatomy, an acquisition by no means useless in surgical operations. Engaged, too, in perpetual hostility, the savage probably regarded the examination of human bodies with little or none of that horror which has proved so inimical to the study of anatomy in more civilized times; and indeed, (if we may judge from the accounts handed to us by the ancients,) he seems to have felt a brutal pleasure in mangle and deforming the persons of his deceased enemies. Thus Homer relates of the Greeks over the body of Hector, that, *Οὐδ' ἀγα οἱ τῆς ἀνιούσης γέ παρσεν.*

It was in times when more refined habits of life obtained, and in situations where gentler pursuits occupied the

the attention of mankind, that the application of remedies to the cure of internal maladies took its rise. The tending of flocks and herds, which then became a very general employment, must have induced habits of leisure and contemplation extremely favourable to the acquisition of experimental knowledge: we may suppose that the pastors observed the effects of certain plants on their flocks; and by a natural and easy transition were induced to administer the same substances in ailments of their own bodies: a supposition which the facts related by Herodotus and others seem to confirm. The above-mentioned author observes, that Melampus discovered the *melampodium*, or black hellebore, to be possessed of a purgative property from having observed its effect on goats which had browsed in pastures where this herb was indigenous and frequent. Again, we are informed, that the first use of enemas was taught mankind by the Ibis, a bird which is reported to have the power of introducing its bill into the anus, and injecting thereby a quantity of water up the intestines. Pliny likewise mentions a circumstance to which he attributed the introduction of phlebotomy; viz. that the Hippopotamus has a custom, whenever it becomes large and unwieldy, of opening a vein in its leg by means of a sharp reed which grows on the banks of the Nile. The accuracy of the two latter relations may be questioned; yet probably they had their origin in facts, though tradition and the lapse of time had altered or exaggerated them. However this may be, there can be little doubt, but that in this branch of medicine, as in anatomy, the phenomena displayed in the brute creation furnished man with useful hints, and contributed, in a few instances, to introduce medical herbs to his notice. The consideration of the more or less salubrious qualities of his own food led to the introduction of certain regimen, or system of diet, which in these times, with the occasional use of a few simple cathartics, was probably sufficient for the cure of most internal complaints; and these observations, naturally communicated from father to son, from one generation to another, and established by long and multiplied experiments, at length laid the basis of materia medica and therapeutics. This empirical practice, however, being often found to fail in affording the expected relief, a minute attention was paid to the concomitant circumstances under which previous cures had been effected, and they were imitated accordingly. Thus one plant was directed to be gathered in the night, another when the moon was on the wane, &c. accompanied with absurd and superstitious incantations.

With respect to the *modus operandi* of these remedies, their first employers must have been totally uninformed, in consequence of their ignorance of natural philosophy; to divine agency therefore they referred the effects of medicinal herbs, rather than to any innate virtue in the substances themselves. To this agency likewise they ascribed the occurrence of disease, or the restoration of health; an idea which appears in some measure connected with that branch of heathen mythology which attributed to every member of the body its guardian genius.

Up to this period every man was more or less a physician, and contributed his individual stock of experience to the general good; but, when the increasing wants and number of the human race compelled them to adopt the forms of political government, and they established the military ruler or chieftain on the one hand, and the priest, druid, or brahmin, on the other, the practice of medicine fell exclusively into the hands of those who executed the sacerdotal function. They seized with avidity the exercise of an art, the unknown or uncertain origin of which favoured the illusion that it was derived immediately from the gods: an art which, clothed in superstition, and venerable from its antiquity, lent them increased influence over the vulgar, and was indeed hardly less useful for that purpose than the sacred or legislative offices which they likewise assumed. They taught that pestilence or disease was inflicted by the angel of the enraged gods,

and easily found means to persuade the sufferers that such dire visitations were only to be removed through the medium of priestly intercession, joined with sacrifices and offerings.

From that passage in Genesis in which it is said, that "Joseph commanded his servants the physicians to embalm his father," (Gen. i. 2.) the writer of the article MEDICINE in the Encyclopædia Britannica concludes that the first physicians of the Egyptians were not priests; because, in that age, the Egyptian priests were in such high favour, that they retained their liberty, when, through a public calamity, all the rest of the people were made slaves to the prince. This, however, we do not think a valid objection; for we cannot doubt that every rank of persons, priests as well as others, might, under an absolute monarchy, be very properly styled servants of the prince, and also of his prime minister.

The same writer seems more founded in his conjecture that the physicians of the Jews were originally distinct from their priests; for we read that, when king Asa was diseased in his feet, "he sought not to the Lord, but to the physicians." (2 Chron. xvi. 12.) Now, seeking to the priests, had they been the physicians, would have been the same thing as seeking to the Lord; and hence it is supposed, that among the Jews the medical art was looked upon as a mere human invention; and it was thought that the Deity never cured diseases by making people acquainted with the virtues of this or that herb, but only by his miraculous power. That the same opinion prevailed among the nations who were neighbours to the Jews, is also probable from what we read of Ahab king of Judah, who, having sent messengers to inquire of Baalzebub, god of Ekron, concerning his disease, did not desire any remedy from him or his priests, but simply to know whether he should recover or not: (2 Kings i. 2.)

We shall now quote a few verses from a book of Scripture (Apocrypha), written "in the latter times, after the people had been led away captive, and called home again, and almost after all the prophets." In this book physicians are spoken of with a much greater degree of respect, but not as if they were priests. "My son, in thy sickness be not negligent: but pray unto the Lord, and he will make thee whole. Leave off from sin, and order thine hands aright, and cleanse thy heart from all wickedness. Give a sweet favour, and a memorial of fine flour; and make a fat offering. Then give place to the physician, for the Lord hath created him: let him not go from thee, for thou hast need of him. *There is a time when in their hands there is good success.* For they shall also pray unto the Lord, that he would prosper that which they give for ease and remedy to prolong life. *He that sinneth before his Maker, let him fall into the hand of the physician.* Ecclesiasticus xxxviii. 15.

"What seems most probable on this subject therefore is, that religion and medicine came to be mixed together only in consequence of that degeneracy into ignorance and superstition which took place among all nations. The Egyptians, we know, came at last to be sunk in the most ridiculous and absurd superstition; and then, indeed, it is not wonderful that we should find their priests commencing physicians, and mingling charms, incantations, &c. with their remedies. That this was the case, long after the days of Joseph, we are very certain; and indeed it seems as natural for ignorance and barbarism to combine religion with physic, as it is for a civilized and enlightened people to keep them separate. Hence we see, that among all modern barbarians their priests or conjurers are their only physicians." Ency. Brit. vol. xiii.

However this may be, the union of medicine and religion continued for many centuries; but, whatever discoveries may have been made, the mystery attendant on most sacred institutions has prevented communication of them to posterity. Nevertheless this union was not perhaps so prejudicial to the interests of science as many have supposed.

posed. Constant sacrifice and the frequent habit of inspecting the "*spirantia exta*" of the victims, must have materially advanced the progress of comparative anatomy; and the written records first adopted by the priests at least prevented established facts from falling into oblivion, even if further experience in the cure of disease was but slowly attained.

The *Egyptians* ascribed the invention of medicine to Thoth, (the Hermes Trismegistus of the Greeks,) to whom divine honours were paid; and they reported that he was the founder of all useful knowledge. But there is some confusion in this account; for, on some occasions, this discovery was attributed to Isis or Osiris, while at other times Apis and Serapis laid claim to the merit of it. It should be recollected, however, that these deities were not like Thoth, mortals who had divine honours paid to them after their decease, but embodied or personified agents, by means of which the philosophers of the time endeavoured to explain all the laws and operations of matter. They were not likely therefore to be commemorated as the inventors of medicine, although they were undoubtedly invoked as presiding over health. Athotis, one of the Egyptian kings, left writings on anatomy, a science in which the nation could hardly have been deficient, on account of the frequent opportunities they enjoyed of acquiring it while engaged in embalming the bodies of the dead. But the other branches of medicine remained a long time stationary, fettered by absurd regulations. In the first place, the chief-priests confined themselves entirely to the exercise of magic rites and prophecies, which they considered the higher branch of the art, and left the exhibition of remedies to the *pastophori*, or image-bearers. Secondly, the priests of every denomination were compelled to follow implicitly the medical precepts of the sacred records contained in the six hermetical books; for, if they deviated from these established rules, or introduced new modes of practice, their temerity was punished with death, whether their measures were successful or not; thus precluding all idea of improvement. We know very little of the details of their practice, as they concealed them with mystic ceremonies; but that they did not interfere much with the operations of nature may be inferred from a circumstance mentioned by Aristotle, viz. that they did not adopt active treatment till after the fourth day of the disease. They had, however, a comprehensive system of diet; for they excluded fish, pork, and such other aliments as they considered injurious to health. They were also acquainted with a few valuable remedies, among which may be enumerated squills, which they administered to dropsical patients, and iron, which they used as a tonic in cachectic diseases; but they were lamentably deficient in surgery, since they were unable to cure a common luxation of the foot, which Darius the son of Hystaspes met with in hunting.

We pass briefly over the history of this science among the *Jews*, because we find little recorded on the subject except miraculous cures, which cannot properly be said to apply to natural medicine. Indeed the Jews seem to have been wholly ignorant of the art of physic until their introduction into Egypt, when they found its principles established.

The alleviation of human infirmity, as recorded in Scripture, forms a subject rather to exercise the faith of the theologian than to engage the attention of the pathologist. It is true, Moses has arranged a code of medicinal and dietetic maxims, and has described several varieties of leprosy with the minuteness of a practical physician; but it does not appear that he attributed much to the virtue of medicines in those complaints. Indeed the administration of remedies could hardly seem necessary to a people who were informed by a direct revelation from the Lord, that, if they would diligently hearken unto his voice, and do that which was right in his sight, he would put none of those diseases on them with which

he had afflicted the Egyptians. To the tribe of Levi was appropriated the administration of the sacred remedies. Solomon was celebrated for his knowledge of plants and animals; and he composed a treatise on the cure of diseases which was destroyed by Ezekias, lest it should cause the sacred remedies, rendered more efficacious by the sacrifices of the priests, to fall into disuse. Isaiah the prophet was likewise famed for medical knowledge: he restored Ezekias to life by applying to his wounds cataplasms of figs. Soon after this period the Jews were dispersed in Media and Assyria, and submitted to the yoke of Babylon.

It is supposed that medicine was cultivated at a very early period among the *Hindoo*s. Of this there can be little doubt. Whether this people were originally derived from the Egyptians, or the Egyptians from them, the similitude in arts, manners, and religion, clearly indicates that the one nation arose from the other. Accordingly we find the art stood in former times nearly on the same footing in Hindoostan as it stood in Egypt. The brahmins held the two offices of priests and physicians; and, as among the Egyptians, allotted a few diseases only to the notice of each individual among themselves.

In *China*, the progress of this art seems to have followed a retrograde course. For this we are at a loss to account: certain it is, however, that the authority of the Chinese on medical subjects was formerly held in much greater estimation than it is at present. The Jesuits have informed us, that the kings of China paid particular attention to the encouragement of medicine; and that Europeans were wont to put greater confidence in the physicians of this country than in those of any other. Moreover this science was taught in their public schools, in conjunction with astronomy. These schools no longer exist: the Chinese physicians implicitly follow the directions of the medical code of Hoang-Ti, written, as they assert, 4000 years ago; and their knowledge is so small and inaccurate, that the emperor Cam-hi commanded Parenhi to translate the anatomical treatise of Dionis into the Tartarian language.

In *GREECE*, medicine was prosecuted with greater ardour, and its collateral science anatomy was investigated more fully, than had been the case in any country before. The Greeks, like the Egyptians, ascribed the introduction of this art to divine revelation: their Apollo and Minerva answered to the Isis and Osiris of the latter nation; and Orpheus, the priest, poet, and physician, usurped the place of Thoth; and the fable of his bringing his wife Eurydice from Hell probably applies to his skill in diseases. But the priority has been given by some to Meilampus, who was a physician of great celebrity at Pylos. He cured the daughters of Prætos king of Argos, who were afflicted with leprosy and madness; and he removed likewise the impotence of Iphiclus, by which cure he also saved his own life.

The next on record is the centaur Chiron, who was preceptor to most of the warriors and great men of his age, but with the greatest success to Æsculapius, or Asclepias, a king of Thessaly (and reputed son of Apollo), who made so great proficiency, that the fable says Jupiter was obliged to remove him from the earth to preserve his brother Pluto's kingdom from depopulation. His sons, Podalirius and Machaon, received from their father the art of healing, which they exercised with success at the siege of Troy, and transmitted to their descendants the Asclepiades. At first, the Asclepiades promulgated their doctrines as priests in the temples of the god of health; but, as schisms arose among the different sects, each temple became in time a distinct medical school. Thus the school of Cereos and Cos were founded, in which for some time the descendants of Æsculapius alone were permitted to practise: but it was afterwards judged necessary to admit a limited number of pupils from other families, who bound themselves by oath to observe the rules

rules of the Asclepiades. From the school of Cos arose Hippocrates, the fourteenth in descent from Æsculapius.

But the study of medicine was not confined to this family; it formed part of the education of kings and heroes. Hercules received from Chiron, in earlier times, the rudiments of medicine. Aristæus, king of Arcadia, was likewise a scholar of the centaurs: to him we owe the introduction of the herb *sylphium*, supposed by some to be *assæfetida*. Jason, Telamon, Theseus and Peleus, Ulysses, Diomed, Hippolytus, and Achilles, were proficient in this art. Achilles is said indeed to have first used verdigris for the purpose of cleaning foul ulcers. But all of them were inferior to the accomplished, the injured, Palamedes; by the excellent rules of diet and exercise to which he submitted the soldiers, he prevented the plague from entering the Grecian camp after it had carried its ravages over most of the cities of the Hellespont and even Troy itself.

Æsculapius flourished about 50 years before the Trojan war; and we have seen that his two sons distinguished themselves in that war both by their valour and by their skill in *curing wounds*. This indeed is the whole of the medical skill attributed to them by Homer; for, in the plague which broke out in the Grecian camp, he does not mention their being at all consulted. Nay, what is still more strange, though he sometimes mentions his heroes having their bones broken, he never takes notice of their being reduced or cured by any other than supernatural means; as in the case of Æneas, whose thigh-bone was broken by a stone cast at him by Diomed. The methods which these two famous surgeons used in curing the wounds of their fellow-foldiers, seems to have been the extracting or cutting out the darts which inflicted them, and applying emollient fomentations or styptics to them when necessary: and to these they undoubtedly attributed much more virtue than they could possibly possess; as appears from the following lines, where Homer describes Eurypylos as wounded and under the hands of Patroclus, who would certainly practise according to the directions of the surgeons of that time:

Patroclus cut the forky steel away;
Then in his hand a bitter root he bruise'd,
The wound he wash'd, the styptic juice infus'd.
The closing flesh *that instant* ceas'd to glow;
The wound to torture, and the blood to flow. *Iliad* xi.

The philosophers of Greece, by adapting their speculations to the elucidation of this science, lent it material aid. Pythagoras visited Egypt and India, collected the therapeutic and dietetic maxims of those nations, and introduced them into his own country: unfortunately, in so doing, he forgot the difference of climate and habits, and endeavoured to apply the vegetable regimen too strictly. He attended diligently to the study of the animal economy; and he founded the school of Crotona, whence arose Alcmaeon, an anatomist of great repute. With respect to the knowledge this latter personage possessed of the human structure, it admits of doubt; but his skill in comparative anatomy is well attested by Aristotle, Diogenes, and Plutarch: with him too originated the first theory of sleep: he supposed, that, when the blood flows in the larger vessels only, sleep is induced; but, when it returns in the smaller ones, waking occurs. Empedocles, the distinguished philosopher, was another ornament of the Pythagorean sect.

Besides these philosophers, and the Asclepiades, there were, at this period, other persons who devoted themselves to the profession of physic, and who occasionally were remunerated by a fixed salary. Thus Democetes of Crotona was retained at the court of the Samian tyrant Polycrates, with an allowance of two talents yearly: being afterwards taken prisoner, and carried as a slave into Persia, he acquired great repute by curing Darius of a sprained foot, after the Egyptian physicians had failed; and also by his successful treatment of a tumour of the

breast, under which Atossa, the daughter of Cyrus, and wife of Darius, had laboured for a considerable time. (Herodot. iii. 133.) Such practitioners, from their wandering lives, were sometimes designated by the name of *περιεδευται*. Of this class, one of the most conspicuous was Acron of Agrigentum, the contemporary and rival of Empedocles, respecting whom Pliny has fallen into a strange error, in describing him as the founder of the empiric sect "under the sanction of Empedocles." According to Diogenes, he was the author of some books on medicine and dietetics, written in the Doric dialect; and he signalized himself at Athens, in the time of the great plague, by introducing the practice of fumigations, and thus affording relief to many. (Plut. de Isid. et Osir.) The *gymnasia* of ancient Greece seem also to have contributed to the improvement of the art. It belonged to the gymnasiarch, or *palaestrophylax*, to regulate the diet of the youths who were trained in these seminaries; the *γυμνασται* were presumed to be conversant with diseases; and it was the business of the *αλυσταί* to perform venesection, to dress wounds, fractures, &c. They were sometimes called physicians. It was in these seminaries that the gymnastic system of medicine originated, under the auspices of Iccus of Tarentum, and Herodicus of Selymbria.

About this time, and contemporary with Hippocrates, flourished Democritus of Abdera, who made the first public dissection on record: he applied himself to this task for the purpose of ascertaining the nature and course of the bile; and dissected with so much assiduity, that the Abderites suspected him of insanity, and accordingly sent for Hippocrates (as it is reported) to cure him: but the latter, so far from finding him mad, discovered that he was extremely wise, as he expresses himself in a letter to his friend Damagetus.

As we are now arrived at an era in which the history of pathology will assume, as it were, a tangible shape, we shall divide our large field of information into three sections; the first reaching to the decline of the art during the dark ages; the second from that time to the end of the sixteenth century; and the third, to the present time.

I. From the TIME OF HIPPOCRATES to the DARK AGES.

HIPPOCRATES has justly been styled the Father of Medicine, since his writings are the most ancient expressly on this subject which have been preserved. His transcendent merit alone would, however, secure to him that title. He has left behind him useful hints on almost every branch of medicine; and has investigated some of them with an exactness which has left us little to desire. On anatomy, though probably he did not himself make dissections, he has compiled all the information extant in his time; and his theory of medicine, though long since exploded, merits, in comparison with the hypothetical and extravagant notions that had preceded it, much encomium. It was certainly more comprehensible, and more explanatory of known facts, than the doctrine of Pythagoras, which accounted for every thing by the science of numbers; or than that of Empedocles, which referred all phenomena to the agency of an ethereal spirit. It is, however, the *practical* part of medicine that Hippocrates has so much elucidated. We discard his theory of Nature, his concoctions and inspissations; but in his account of diseases, in the accurate histories he has afforded us of signs or symptoms, their relations and effects, he stands unrivalled. His *prognostics*, too, have comparatively been little improved in the present day: indeed he carried them to so great a degree of perfection, that he and his pupils were regarded by the vulgar as prophets. It should be likewise recorded of him, that he endeavoured to divest the art he professed of all that mystery and superstition in which he found it enveloped, and that he gave the first outline of a subject of great importance, *medical ethics*. His authority has been revered for ages, and his maxims have been received as dogmas, not only in the schools, but in the courts of law. We need

Pindar⁺ affirms that Esculapius cured
those who were affected with ulcers of spontane-
ous origin; those who were wounded by the polished
braß, or the far-thrown stone; and those who
suffered ~~from~~ ^{by} the summer's heat, or the winter's
cold; curing some by incantations, and others
by medicines; restoring some to health, or strait-
ness, by remedies bound round the diseased
members, and others by incisions.

Ἰσμεν αὖ οὐδοῖ πολὺν αὐτοφύτον
ἐλεον { υναστες, ἡ πολέω

not therefore be surprised that many men of inferior celebrity should have endeavoured to render their works popular by ascribing them to this famous physician. Accordingly we find many writings extant bearing his name, which are evidently spurious. It should be remarked however, that these writings are nearly of the same date as his genuine compositions, and contain the prevalent doctrines of his time.

The pathology of Hippocrates was founded on the assumption, that a principle exists in the animal, tending to the preservation of health, and the removal of disease. To this principle, which he denominates *Nature*, he appears to have attributed some degree of intelligence, and even in one place applies to it the epithet of *just*. "The manner in which Nature acts, or commands her subservient power to act, is by attracting what is good and agreeable to each species, and by retaining, preparing, and changing, it; and on the other side in rejecting whatever is superfluous or hurtful, after she has separated it from the good." This is the foundation of the doctrine of depuration, concoction, and crisis, in fevers, so much insisted upon by Hippocrates and many other physicians. He supposes also, that every thing has an inclination to be joined to what agrees with it, and to remove from every thing contrary to it; and likewise that there is an affinity between the several parts of the body, by which they mutually sympathize with each other.

Hippocrates referred the production of most diseases to diet and air; to the former of which he attached so much importance, that he composed several books concerning it: yet in another part of his works he gives the judicious maxim, that while in health we should by no means attach ourselves to nice and delicate habits of living, or live with too much regularity; because those who have once begun to live by rule, become disordered if they depart in the least from it. In the choice of situation with regard to the purity of air, he was particularly careful; and noted especially the winds, the times of the solstices and equinoxes, &c. He likewise took into consideration the effects produced by sleep, watching, exercise, &c. and attached great importance to certain humours, particularly blood and bile. His classification of diseases was arranged according to the circumstances of their danger, duration, or locality: thus some diseases were mortal, dangerous, or curable; others acute or chronic; and again others were divided into endemical, epidemical, and sporadic. Hereditary diseases he likewise noticed.

We are obliged to Hippocrates for the remark, that there are certain *stages* in every distemper; a point of great practical importance. He generally noticed four; the beginning, the augmentation, the height, and the decline. In mortal diseases, death took place instead of the decline; on which account this latter was reckoned by Hippocrates to be worthy of particular investigation. He conceived that during this stage a *crisis* took place; i. e. that the mortified matter which produced the disease was by some means separated from the body; but this separation never occurred until the humour was sufficiently concocted; that is to say, brought into a fit state for expulsion from the body, by the efforts of Nature. Moreover, this author supposed, that, as every fruit has a limited time to ripen in, so concoction could not be accomplished unless within a certain period. He took much pains to establish *critical days*, or the times when these concoctions and crises should take place; and he deemed them most favourable when they occurred on odd days.

In noting the signs and characters of disease, Hippocrates was extremely minute, and that chiefly with a view to foretelling the event of the malady. He observed the altered appearance of every feature of the face, the complexion; the dim, fierce, sparkling, or other expression, of the eyes. He paid attention to the posture and attitude of the sufferer: he remarked the debility which generally attends the continued supine position; and he noticed the picking of the bed-clothes, the uneasy and

tremulous motions, and likewise the *subsultus tendinum*, which denote death in patients affected with fevers.

Hippocrates paid particular attention to the respiration, the different states of which assisted him in forming his prognostics. He examined the urine with great care; but, as his remarks on it chiefly regarded his *humoral hypothesis*, they are now of little interest. He noticed, however, that the crisis of fever was often brought about when the urine became very abundant, and the thick appearance of it denoted disease of the bladder; he was in the habit of comparing the appearance of this evacuation with that of the tongue. The *fæces* too were investigated, in relation to their odour, consistence, and colour, by this author. But he has recorded more important facts concerning the expectoration which arises in pulmonary complaints: he says that, when it is mixed with blood (in chronic cases), when it is entirely wanting, or when it is so copious as to cause rattling in the throat, it denotes extreme danger; but that, when it is mixed with purulent matter, it indicates consumption, and terminates in death. Concerning perspiration, Hippocrates has recorded the beneficial effects derived from its occurrence in fevers; when it is general, it often produces the crisis: but he has well remarked the danger of cold and partial sweats.

It has been doubted whether this celebrated physician understood any thing about the pulse. It has been supposed that the passages found in his works apply only to the pulsation which is felt in an inflamed part. But his knowledge must have extended further than this on the subject; because he talks of slow and tremulous pulses; and in his *Couæ Prænotiones* he remarks, that the sensible pulsation of the artery in the elbow indicates delirium, or the presence of violent anger.

Exercise was not neglected by Hippocrates; but he justly blames his preceptor Herodicus for recommending it to those afflicted with fevers or inflammatory affections. Indeed the latter physician was so fond of gymnastics, that he made his patients walk from Athens to Megara, a distance of twenty-five miles, and return as soon as they had touched the walls of the city. Yet Hippocrates justly appreciated the advantage of exercise in chronic diseases; and even tells us that "we must sometimes push the timorous out of bed, and rouse up the lazy."

Hippocrates gave many general rules of importance in regard to the establishment of health, among which are the important ones of keeping up, in most cases, a regular discharge; to deplete the plethoric by low living, and to avoid sudden exposure to increased or diminished temperature.

The therapeutical maxims of Hippocrates were few and simple, and all founded on his theory of Nature curing diseases; inasmuch that all that could be done was to remove such things as were injurious to the agency of that principle, or to assist it in its operations when it was deficient. He asserted, in the first place, "That contraries, or opposites, are the remedies for each other;" and this maxim he explains by an aphorism; in which he says, that evacuations cure those distempers which come from repletion, and repletion those that are caused by evacuation: so heat is destroyed by cold, and cold by heat, &c. In the second place, he asserted that physic is an addition of what is wanting, and a subtraction or retrenchment of what is superfluous: an axiom which is thus explained, that there are some juices or humours, which in particular cases ought to be evacuated, or driven out of the body, or dried up; and some others which ought to be restored to the body, or caused to be produced there again. As to the method to be taken for this addition or retrenchment, he gives this general caution, "That you ought to be careful how you fill up, or evacuate, all at once, or too quickly, or too much; and that it is equally dangerous to heat or cool again on a sudden; or, rather, you ought not to do it: every thing that runs to an excess being an enemy to nature." In the fourth place, he allowed that we ought sometimes to

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dilate, and sometimes to lock up; to dilate, or open the passages by which the humours are voided naturally, when they are not sufficiently opened, or when they are closed; and, on the contrary, to lock up or straiten the passages that are relaxed, when the juices that pass there ought not to pass, or when they pass in too great quantity. He adds, that we ought sometimes to smooth, and sometimes to make rough; sometimes to harden, and sometimes to soften again; sometimes to make more fine or supple; sometimes to thicken; sometimes to rouse up, and at other times to stupify or take away the sense; all in relation to the solid parts of the body, or to the humours. He gives also this farther lesson, That we ought to have regard to the course the humours take, from whence they come and whither they go; and in consequence of that, when they go where they ought not, that we make them take a turn-about, or carry them another way, almost like the turning the course of a river; or, upon other occasions, that we endeavour, if possible, to recal, or make the same humours return back again; drawing upward such as have a tendency downward, and drawing downward such as tend upward. We ought also to carry off, by convenient ways, that which is necessary to be carried off; and not let the humours once evacuated, enter into the vessels again. Hippocrates gives also the following instruction; "That, when we do any thing according to reason, though the success be not answerable, we ought not easily, or too hastily, to alter the manner of acting, as long as the reasons for it are yet good." But, as this maxim might sometimes prove deceitful, he gives the following as a corrector to it: "We ought (says he) to mind with a great deal of attention what gives ease, and what creates pain; what is easily supported; and what cannot be endured. We ought not to do any thing rashly; but ought often to pause, or wait, without doing any thing: by this way, if you do the patient no good, you will at least do him no hurt."

These are the principal and most general maxims of the practice of Hippocrates, and which proceed upon the supposition laid down at the beginning, viz. that Nature cures diseases. We next proceed to consider particularly the remedies employed by him, which will serve to give us further instructions concerning his practice.

Diet was the first, the principal, and often the only, remedy made use of by this great physician to answer most of the intentions above mentioned; by means of it he opposed the moist to dry, hot to cold, &c. and what he looked upon to be the most considerable point was, that thus he supported Nature, and assisted her to overcome the malady. The dietetic part of medicine was so much the invention of Hippocrates himself, that he was very desirous to be accounted the author of it; and, the better to make it appear that it was a new remedy in his days, he says expressly, that the ancients had written almost nothing concerning the diet of the sick, having omitted this point, though it was one of the most essential parts of the art.

There were many diseases for which he judged the *bath* was a proper remedy; and he takes notice of all the circumstances that are necessary in order to cause the patient to receive benefit from it, among which the following are the principal. The patient that bathes himself must remain still and quiet in his place, without speaking, while the assistants throw water over his head or are wiping him dry; for which last purpose he desired them to keep sponges, instead of that instrument called by the ancients *strigil*, which served to rub off from the skin the dirt and nastiness left upon it by the unguents and oils with which they anointed themselves. He must also take care not to catch cold; and must not bathe immediately after eating or drinking, nor eat or drink immediately after coming out of the bath. Regard must also be had whether the patient has been accustomed to bathe, while in health, and whether he has been benefited or hurt by it.

Lastly, he must abstain from the bath when the body is too open, or too costive, or when he is too weak; or if he has an inclination to vomit, a great loss of appetite, or bleeds at the nose.

When he found that diet, exercise, and bathing, were not sufficient to ease nature of a burden of corrupted humours, he was obliged to make use of other means; of which vomiting, bleeding, and purging, were the chief.

Vomits were a favourite remedy with Hippocrates. He prescribed them to people in health, by way of preventatives, directing them to be taken once or twice a-month in the winter and the spring. The most simple of these was a decoction of hyssop, with the addition of a little vinegar and salt. With regard to the sick, he sometimes advised them to the same, when his intentions were only to cleanse the stomach. But, when he had a mind to recal the humours, as he termed it, from the inmost recesses of the body, he made use of brisker remedies. Among these was white hellebore; and this indeed he most frequently used to excite vomiting. He gave this root particularly to melancholy and mad people; and from the great use made of it in these cases by Hippocrates and other ancient physicians, the phrase, *to have need of hellebore*, became a proverbial expression for being out of one's senses. He gave it also in defluxions, which come, according to him, from the brain, and throw themselves on the nostrils or ears, or fill the mouth with saliva, or that cause stubborn pains in the head, and a weariness or an extraordinary heaviness, or a weakness of the knees, or a swelling all over the body. He gave it to consumptive persons in broth of lentils, to such as were afflicted with the dropsy called *leucophlegmatia*, and in other chronic disorders. But we do not find that he made use of it in acute distempers, except in the cholera morbus, where he says he prescribed it with benefit. Some took this medicine fasting; but most took it after supper, as was commonly practised with regard to vomits taken by way of prevention. The reason why he gave this medicine most commonly after eating was, that by mixing with the aliment, its acrimony might be somewhat abated, and it might operate with less violence on the membranes of the stomach.

In the distemper called *empyema* (or a collection of matter in the breast), he made use of a very rough medicine. He commanded the patient to draw in his tongue as much as he was able; and, when that was done, he endeavoured to put into the hollow of the lungs a liquor that irritated the part, which, raising a violent cough, forced the lungs to discharge the purulent matter contained in them. The materials that he used for this purpose were of different sorts; sometimes he took the root of arum, which he ordered to be boiled with a little salt in a sufficient quantity of water and oil; dissolving a little honey in it. At other times, when he intended to purge more strongly, he took the flowers of copper and hellebore; after that he shook the patient violently by the shoulders, the better to loosen the pus. This remedy, according to Galen, he received from the Cnidian physicians; and it has never been used by succeeding ones, probably because the patients could not suffer it.

Blood-letting was another method of evacuation pretty much used by Hippocrates; and in inflammatory affections he practised it in a large and decided manner; for he sometimes opened the veins of both arms, and kept them running till the patient fainted. The principal maladies in which he had recourse to bleeding were inflammations of the liver, spleen, lungs, or other viscera; quinsey, pleurisy, and pain in the head; but in some instances of chronic disease, as dropsy and jaundice, he likewise performed this operation. In fevers he disapproved of venesection, because he conceived those diseases were produced by certain humours which could not be expelled by that means: it must, however, be understood, that he did not extend this rule to symptomatic fevers, but rather to those which were not preceded by signs of
local

local inflammation. Indeed, in his writings, the term *fever* is only applied to that class which we call *idiopathic*; and there seems good reason to suppose, that, in the commencement of a fever arising out of visceral inflammation, he bled very copiously. He likewise performed cupping with scarificators; and occasionally used the *femicupium*, which he supposed would draw the humours from the affected part by means of *attraction*.

As most of the purgatives in use in the time of Hippocrates were very violent in their operation, often producing sickness, he prescribed them with great caution. He did not give them to pregnant women, old people, or children; nor during the dog-days. He used them more frequently in chronic than acute diseases, and chiefly with a view to the expulsion of some particular humour; to each of these humours he applied a separate kind of purgative; hence the distinction of those substances into hydragogues, cholagogues, &c. now justly exploded. Hippocrates likewise used *errhines*, which he said relieved pain in the head by drawing the phlegm from the brain; sudorifics and diuretics, which were likewise for the purpose of evacuating some peccant humour, and narcotics, or, as he called them, *hypnotics*, to produce sleep. But of these last he was very sparing. To medicines which experience had proved to be efficacious, but of which the operation was inexplicable by this humoral pathology, he applied the term *specifics*. He used fomentations, in which different herbs were boiled, either by direct application or in the form of vapour. Nor did he neglect cataplasms, ointments, caustics, and collyria; all of which he prepared himself, or caused to be made by his servants under his own immediate inspection. The pharmaceutical distinctions of medicines into mixtures, powders, and pills, were observed in this time, and likewise something analogous to our lozenge was used; it was called a *lambative*, was of a soft consistence, and was retained in the patient's mouth until slowly dissolved. The practice of Hippocrates was beneficial to himself; for it is generally understood that he reached the age of a hundred years, and died about 360 years before the birth of Christ.

Soon after the death of Hippocrates, the professors of medicine became divided into two sects; the Dogmatists and the Empirics.

The sect of the DOGMATISTS was founded by Theſſalus and Draco the sons, and Polybus the son-in-law, of Hippocrates. Their leading tenets are recorded in the book "On the Nature of Man," which has falsely been attributed to Hippocrates. Aristotle conjectures that it was written by Polybus. The Dogmatists were sometimes called *logici*, or logicians, from their using the rules of logic and reason in the subjects of their profession. They set out with the rule, that, "when experience fails, reason may suffice." Unfortunately, however, they took little pains to consult experience, but were perpetually occupied with endeavouring to trace disease to its secret and remote causes.

The system of the EMPIRICS, as the term imports, was founded altogether upon *experience*: and those who belonged to this sect have remarked, that there are three modes by which we learn, from experience, to distinguish what is advantageous and what is prejudicial, in regard to our health. 1. The first of these, and the most simple, arises from *accident*. A person, for example, having a violent pain in the head, happens to fall, and divides a vessel in the forehead; and it is observed that, having lost blood, his pain is relieved. Under the same mode, they include the experience which is acquired by observing the spontaneous operations of the constitution, where no remedy has been applied, as in the following case: a person labouring under a fever, finds his disease mitigated, after a hemorrhagy from the nose, a profuse perspiration, or a diarrhoea. 2. The second mode of gaining experience is, that in which something is done by *design*, with a view to ascertain what will be the success of it; as, for instance, when a person, having been bitten

by a serpent, or other venomous creature, applies to the bite the first herb that he finds; or when a man attempts to alleviate the symptoms of an acute and burning fever, by drinking as copiously as he is able of cold water; or when a person tries a remedy, suggested to him by a dream, as was frequently done in heathenish times. 3. The third mode of experimenting is, that which the empirics termed *imitative*; which is pursued in cases, when, after having remarked the effects resulting from *accident*, or the spontaneous actions of the system, on the one hand, or from *design* on the other, we make an attempt to accomplish a similar result by imitating that which was done on those occasions.

This last sort of experience, they contend, is that which peculiarly constitutes the art of medicine, when it has been frequently repeated. They call that *observation* (*τηρησις*), or *autopsia*, (*αυτοψια*), which each individual sees himself; and use the term *history* or *record*, (*ιστορια*), for such observation, when committed to writing; that is, the *autopsia*, or personal experience, consists of the observations which each person has made, by his attention to the progress of a disease, whether in regard to its symptoms and changes, or to the remedies employed; while the *record* is a sort of narration or register of all that was observed by those individuals; which register being completed, (i. e. including all the diseases incident to mankind, and the remedies administered for their alleviation,) the art of medicine would be established with a considerable degree of certainty. But, as new diseases sometimes occur, in regard to which neither our personal experience, nor the observations of others, can furnish us with any assistance; and we meet with disorders in particular situations, where the means of relief, sanctioned by experience elsewhere, are not within our reach; we must necessarily have recourse to some other expedient in order to alleviate the sufferings of the patient. The empirics were provided against this particular difficulty, in what they termed a *substitution* of similar means, (*transitus ad simile*, as the Latins have translated it.) This was a new experiment, which they instituted, after having compared one disease with another; or one part of the body with another, of similar structure; or, lastly, one remedy, the nature of which was ascertained by experiment, with another which resembled it. "They tried, for example, in *herpetic* eruptions the remedies which had relieved *erysipelas*; and, in the diseases of the *arms*, they employed the expedients which had been practised in those of the *legs*; &c. &c." *Observation*, then, *record*, and the *substitution* of similar means, were the three fundamental resources of the art of medicine, according to the empirics: and these were denominated, by Glaucias and others, "the tripod of medicine."

There is obviously a great deal of good sense and sound philosophy in this doctrine of empiricism. It points out the true mode of investigating the phenomena of nature by unwearied experiment; the mode which Bacon laboured to inculcate, which Newton successfully pursued, and which has led the philosophers of later times to the development of that fund of natural knowledge in the sciences of electricity, chemistry, mechanical, and every branch of natural philosophy, by which modern inquiry is distinguished. Compared with this species of investigation, how futile are the speculations, misnamed philosophy in the schools, relative to elements and essences, which had no existence except in the imagination of the disputants.

At first much rancour and animosity subsisted between these two parties; but, in process of time, their practice was found to coincide in many material points; for, though the dogmatists were much addicted to hypotheses, they could not fail to make clinical observations when engaged in practice; and the empirics did not entirely confine themselves to their professed mode of acquiring knowledge, but occasionally indulged in that passion for theory and generalization which is so common in a philosophic

phic age. It is evident, then, that both the dogmatic and empiric physicians appealed to experience, and that neither excluded altogether the dictates of reason and reflection. The principal difference in their tenets appears to have consisted in this: that the empirics reasoned only from the facts ascertained by observation, without attempting to explain their essential and inscrutable nature by hypotheses; and that the latter speculated upon the mode and nature of every phenomenon in the animal body, and took these speculations as the basis of their reasoning: an error in the investigation of nature, which, as we have before said, was so well exposed by lord Bacon in modern times; and which was practically illustrated in the triumph of Newton's *empirical* doctrines, over the *dogmatical* hypotheses of Des Cartes.

The empirical sect had not enjoyed great influence or dissemination till Serapion of Alexandria, in the year before Christ 280, took up and defended their doctrines with great spirit: hence some have called him the founder of the sect. His works are lost; but what has been transmitted of his opinion by other authors, tends to prove that he followed the practice of Hippocrates with great fidelity, though he severely criticised his reasonings.

It is chiefly to the industry of the ancient empirics that we are indebted for the introduction, or rather for the full knowledge, of sedative and narcotic remedies; on the liberal use of which probably depended the superior reputation acquired by some of them over their more cautious antagonists. Of this superiority, a singular instance occurs in the many existing testimonies to the fame of Heraclides of Tarentum. Celsus Aurelianus calls him "Empiricorum Princeps;" and Galen speaks of him in very high terms. He so far deviated from the practice of the strict empirics, that he searched after the causes of disease with almost as much pertinacity as the dogmatists; by no means however neglecting the practical observations which were taught in the empirical school. This union of theory and practice led him to many useful results, more particularly in respect to acute and dangerous diseases, his treatment of which appears to have been extremely judicious. He seems to have made a more liberal use of active medicaments, especially of the narcotic class, than his predecessors, having been the first to introduce opium into use as a medicine; and was very industrious in his investigation of animal, vegetable, and mineral, substances, with a view to enrich the catalogue of the *materia medica*. To the books which he wrote upon this subject, he gave the name of the individuals to whom he dedicated them, according to Galen; entitling one "Astydamas," and another "Antiochis." He likewise wrote on the subject of diet, and the regimen to be observed in diseases, in which abstinence seems to have been pushed to a great extent.

It is easy to see, however, that the direction of medical inquiry, given by the empirical physicians, to the discovery of the qualities of medicinal substances, or drugs, would in all probability lead to many abuses and evils. Experiment of this sort being much easier, at least when carelessly made, than that unremitting and accurate observation of the phenomena of diseases which alone can constitute the scientific physician, the ignorant and idle would content themselves with pharmaceutical experiments, and neglect the task of pathological investigation; and selfish craft and dishonesty would soon learn to impose on the credulity of the people, in the administration of secret remedies, when the use of a particular drug, and not the general treatment of a disease, was supposed to be the essence of medicine. Hence it actually happened, even in the early ages of physic, that these ignorant and illiberal pretenders to *panaceus*, and infallible remedies, who did not know one disease from another by its symptoms, appeared in Egypt, Greece, and Arabia, and were much complained of by their more rational contemporaries. In all succeeding ages, the race of these illiterate

pretenders has been multiplied, under the abused name of *empirics*, by which we now understand those persons who sell or administer a particular drug, or compound, as a remedy for a given disorder, without any consideration as to the variations of that disorder, in its different stages, or degrees of violence, or as it occurs in different constitutions, climates, or seasons, or in persons of different age, sex, strength, &c. Such a practice implies a total ignorance of the nature of the human constitution, both in health and disease; and therefore is generally found to be the resort of the illiterate and selfish, not to say dishonest, part of mankind.

After the death of Heraclides, the study of the *materia medica* took a new direction, in consequence of the attention that was paid to the subject of *poisons* and their *antidotes*, by the kings of Pergamus and Pontus. The antidote which was invented by the latter is well known, though its efficacy has never been proved. Even Sere-nus, who is in general sufficiently credulous, seems to have had no very high opinion of its virtues:

Antidotus vero multis Mithridatica fertur
Confociata modis, sed Magnus serenia regis
Cum caperet victor, vitemprehendit in illis
Synthesin, et vulgata satis medicamina risit.

Nicander of Colophon, who was the contemporary of Attalus king of Pergamus, acquired great fame as a grammarian, a poet, and a physician. He endeavoured with the worst success to clothe medicine in flowing numbers. His only pieces extant are the *Alexipharmica* and *Theriaca*, which contain observations concerning poison and their antidotes, which (as we have said) became a very favourite pursuit about his time. See NICANDER, vol. xvii. p. 45.

At the time that the sons of Hippocrates founded the dogmatic sect; Eudoxus of Cnidos framed a system of medicine founded on the philosophy of Pythagoras, and the practice of the Egyptians. It was therefore principally directed to the dietetic part of medicine. He was followed by his pupil Chrysippus, of whose practice we have nothing memorable to relate, but that he regarded cabbage as a very important remedy, and was very averse to the operation of bleeding or the exhibition of purgatives. He was the preceptor of the renowned Erasistratus. Diocles of Carystus was about this period a practitioner of repute; though placed by the *Biographia Literaria* as low as A.D. 500. an error of 800 years! He applied himself to comparative anatomy with some success, and invented an instrument, which was called after him *Diocleus graphiscus*, for the extraction of arrow-heads. His contemporary Praxagoras rendered important services to medicine; he first discovered the difference between arteries and veins, described the cotyledons of the human uterus, and explained the phenomenon of the pulse, a subject which had been very imperfectly understood by Hippocrates himself. It is remarked, however, by Galen, that his information was not so correct, but that he involved himself in many disputes and contradictions. This physician was very fond of emetics: he administered them in the iliac passion, and in doses so large and so frequently repeated, that the stools were ejected by the mouth. His surgical treatment of the same disease shows him to have been a bold and skilful operator: Aurelian says, that he directs an incision to be made through the belly and intestines, the indurated faeces to be removed, and the bowels then sowed up.

The progress of this art now became advanced by the labours of men not exactly interested in its practice. Aristotle, who, from the unbounded liberality of his patron Alexander, possessed opportunities of dissecting animals on a most extended scale, acquired a mass of information which we read with instruction and admiration even in the present age. Nor were his metaphysical doctrines without their influence on the philosophy of medicine; they continued to influence it (sometimes unfavourably)

favourably) for ages. The beautiful system of ethics, likewise, to which Zeno and Epicurus gave birth, were not developed without a subsequent change in this science. The tenets of Epicurus and Pyrrho were adopted by the empirical sect, while the dogmatists attached themselves to the stoical system, particularly the dietetic method. For, we must remark, that, foreign as these subjects may appear to the practice of physic, yet its higher branches cannot be successfully studied without occasional reference to every branch of philosophy, whether moral or physical.

The establishment of the *Alexandrian School* forms an important epoch in the history of medicine. But we have to regret that the destruction of its splendid library, by the hands of barbarous conquerors, has left us little to relate concerning its doctrines or its practice. We have little hesitation, however, in saying, that the advancement of medicine must have been very great in a situation where it derived assistance from long cultivation of its principles in Greece, Egypt, and India, a situation too where science in general was patronised with so much earnestness by illustrious kings. Moreover this city of Alexandria, on account of the connexion it held with all the world as a commercial emporium, must have been frequently visited by foreigners whose diet, clothing, habits of life, not to mention a free communication of their own medical rules, must have illustrated the speculations of the Alexandrian physicians in a very luminous manner. The long series of facts collected by the Egyptian priests was here treasured up; the observations of the Hebrews, who, long dispersed over the plains of Assyria and Media, had united their own medical doctrines with the tenets of Zoroaster and Ham, were examined; while the Greeks, uniting the useful part of this desultory and obscure information with the sound practice of their ancestor Hippocrates, with the anatomical knowledge they were rapidly acquiring, and with their own profound philosophy, advanced the progress of the healing art in an unexampled manner.

Erasistratus and Herophilus were the first physicians of note in this school. The former flourished about the time of Seleucus, B. C. 270. His attention was directed for the most part to surgery and anatomy; but, that his medical taste was of no mean description, we have ample proof in the story told of his discovering the love of Antiochus for Stratonice, whom Seleucus his father had then lately married. He made this discovery from observing, that the colour of the prince changed, and his pulse quickened, when Stratonice entered the room, and that no such effects followed the presence of any other woman. Erasistratus was likewise confirmed in this opinion, because he was unable to trace elsewhere the cause of the prince's extreme illness; for it should be remarked, that Erasistratus held the same opinion as the dogmatists, that a disease could not be cured without a knowledge of its cause. The same incident likewise shows the high rank which the physicians held in those days; since, by the influence of Erasistratus, Seleucus was persuaded not only to give up his wife, but also part of his kingdom, to Antiochus.

Erasistratus supposed that inflammation was produced by the coagulation of blood in the small arterial vessels. In his practice he was fond of simple remedies, more especially of *succory*; and he even descended to describe the best mode of boiling it. He taught that medicines did not operate on the bowels by attraction, as had been supposed; and that the humours which they discharged were not the same in the body as they appeared after their evacuation, but were altered by the action of those remedies. To purging, however, he had an objection, and supplied the want of it by clysters. Emetics were frequently prescribed by him; and he recommended abstinence in a great degree. Venesection he disapproved of for some very foolish reasons; among which, it may be sufficient to mention, 1st. That we cannot see the vein; 2dly. That we may

cut the artery; 3dly. That we do not know how much to take. His attachment to his theory of inflammation was the principal theory, however, why he objected to bleeding, because it did not appear to him, that the abstraction of blood was likely to relieve the coagulation of that fluid in its vessels.

Some very barbarous acts are related of this physician; for instance, that he sometimes cut open the bodies of patients afflicted with complaints of the liver, and applied remedies immediately to the substance of that organ. Yet he objected to the operation of *paracentesis*, or tapping, because he conceived that, the water being evacuated, the surrounding viscera would press upon the liver, and produce fatal consequences. He had a notion, that death changed the structure of the body, as well as the relation of its parts. In this opinion he was strongly supported by Herophilus; and we turn with horror from the contemplation of 600 victims whom these barbarians are reported to have dissected alive, and blush that such a record should be found in the annals of medicine. Yet the refined Celsus, after enumerating the advantages which accrued from this atrocious deed, excuses the cruelty of it by observing, that "It cannot be justly deemed cruel to put a few guilty individuals to torture, with a view to ascertain means of relief for all the innocent among mankind in all succeeding ages."

Herophilus added, to the anatomical researches in which he assisted his contemporary, an intimate acquaintance with pharmacy. He made use of a great number of medicines, both simple and compound. In his works, we find the first mention of a disease which he calls *palsy of the heart*; it produced sudden death, and it has been supposed that this must answer to what we now call *angina pectoris*.

About this period, according to Celsus, the practitioners of medicine were formed into three divisions: 1. Those who attended to diet, regimen, and domestic management, who were particularly careful to distinguish the causes and symptoms of diseases, and were of the first rank. 2dly. Those who administered remedies, in the preparation of which they affected to be particularly careful. And, lastly, those who performed the operations of surgery. Anterior to this time, the preparation of medicine among the Greek physicians was entrusted to their *ὑγιατροὶ*, or students, as well as the surgical department, though the latter was often executed by the physicians themselves. The combination of the three branches continued, however, for ages, in a few instances, among the Greeks, the Romans, and the Arabians.

The Romans, as Pliny assures us, had continued without physicians, if not without physic, during a period of 600 years. The few manual operations which were found indispensably necessary were performed by their slaves or freedmen; and instances are not wanting, in which their skill was rewarded by the honour of citizenship. On the occasion of a destructive epidemic, in the year 463 A.U.C. however, they sent a deputation to the temple of Æsculapius at Epidaurus. Instead of an oracle, they received one of the sacred serpents; and, following the indication of its springing from the ship upon the island of the Tiber, they there founded a temple to the god of medicine, and established his worship on the same footing as at Epidaurus. Shortly afterwards, a temple was dedicated to the Grecian Hygeia, and the worship of Isis and Serapis was borrowed from the Egyptians; but, besides these, the Romans afterwards erected fanes in honour of medical deities peculiar to themselves. A prevalent dread of certain maladies caused them to offer up prayers to the deities who were supposed to inflict them. Hence they worshipped *Febris* on the Palatine Mount, and *Mephitis* at Cremona. They had likewise a goddess *Offipaga*, who presided over the growth of bones, and *Carna*, who took care of the viscera, and to whom they offered bacon and bean-broth, as being nutritious articles of diet. The first person who practised medicine at Rome in a regular man-

ner, was one Archagathus, a Greek, B. C. 219. The Roman senate at first seemed to give him much encouragement, and even bought a shop for him, and presented him with the freedom of the city. But his frequent use of the knife, and of the actual cautery, soon brought him into disrepute. The populace were loud in their clamours against his cruelty, attached to him the name of *Carnifex*, Butcher, and eventually banished him from Rome.

Asclepiades, of Prusa in Bythynia, was the next physician of note who appeared at Rome after Archagathus, but separated from him "longo intervallo." He had studied at Alexandria and Athens, and came to Rome, in the 654th year A.U.C. or 100 years before the Christian era, as a teacher of rhetoric: but, not finding that profession sufficiently lucrative, he suddenly turned physician; and, by his consummate address, in a short time brought himself into great notice. The prototype of all succeeding quacks, Asclepiades affected to condemn every thing that had been done before him—"omnia abdicavit; totamque medicinam, ad causam revocando, conjecturam fecit." He ridiculed Hippocrates for his patient observation of nature, and called his system "a meditation on death." His fame, however, would have been incomplete, if he had not introduced a system of his own. Accordingly, taking for the basis of it the philosophy of Epicurus and Heraclides of Pontus, he attempted to explain all the functions of the human body, and all the operations of health and disease, by means of *corpuscles* and *pores*. He asserted, that matter considered in itself was of an unchangeable nature; and that all perceptible bodies were composed of a number of smaller ones, between which there were interspersed an infinity of small spaces totally void of all matter. He thought that the soul itself was composed of these small bodies. He laughed at the principle called *Nature* by Hippocrates, and also at the imaginary faculties said by him to be subservient to her; and still more at what he called *Attraction*. This last principle Asclepiades denied in every instance, even in that of the loadstone and steel, imagining that this phenomenon proceeded from a concourse of corpuscles, and a particular disposition or modification of their pores. He also maintained, that nothing happened or was produced without some cause; and that what was called *nature* was in reality no more than *matter* and *motion*. From this last principle he inferred that Hippocrates knew not what he said when he spoke of Nature as an intelligent being, and ascribed qualities of different kinds to her. For the same reason he ridiculed the doctrine of Hippocrates with regard to crises; and asserted that the termination of diseases might be as well accounted for from mere matter and motion. He maintained, that we were deceived if we imagined that Nature always did good; since it was evident that she often did a great deal of harm. "As for the days particularly fixed upon by Hippocrates for crises, or those on which we usually observe a change either for the better or the worse, Asclepiades denied that such alterations happened on those days rather than on others. Nay, he asserted that the crisis did not happen at any time of its own accord, or by the particular determination of nature for the cure of the disorder, but that it depended rather on the address and dexterity of the physician; that we ought never to wait till a distemper terminates of its own accord, but that the physician by his care and medicines must hasten on and advance the cure. He accused Hippocrates and other ancient physicians of "attending their patients rather with a view to observe in what manner they died than in order to cure them;" and this under pretence that Nature ought to do all herself, without any assistance.

The practice of Asclepiades was principally gestation, friction, and the use of wine. By various exercises he proposed to render the pores more open, and to make the juices and small bodies, which cause diseases by their retention, pass more freely; and, while the former physicians had not recourse to gestation till towards the end of long-continued disorders, and when the patients, though en-

tirely free from fever, were yet too weak to take sufficient exercise by walking, Asclepiades used gestation from the very beginning of the most burning fevers. He laid it down as a maxim, that one fever was to be cured by another; that the strength of the patient was to be exhausted by making him watch and endure thirst to such a degree, that, for the two first days of the disorder, he would not allow them to cool their mouths with a drop of water. Celsus also observes, that, though Asclepiades treated his patients like a butcher during the first days of the disorder, he indulged them so far afterwards as even to give directions for making their beds in the softest manner. On several occasions Asclepiades used frictions to open the pores. The dropsy was one of the distempers in which this remedy was used; but the most singular attempt was, by this means, to lull phrenetic patients asleep. Though he enjoined exercise so much to the sick, he denied it to those in health; a conduct not a little surprising and extraordinary. He allowed wine freely to patients in fevers, provided the violence of the distemper was somewhat abated. Nor did he forbid it to those who were afflicted with a phrensy: nay, he ordered them to drink it till they were intoxicated, pretending by that means to make them sleep; because, he said, wine had a narcotic quality and procured sleep, which he thought absolutely necessary for those who laboured under that disorder. To lethargic patients he used it on purpose to excite them, and rouse their senses: he also forced them to smell strong-scented substances, such as vinegar, castor, and rue, in order to make them sneeze; and applied to their heads cataplasms of mustard made up with vinegar.

Besides these remedies, Asclepiades enjoined his patients abstinence to an extreme degree. For the first three days, according to Celsus, he allowed them no aliment whatever; but on the fourth began to give them victuals. According to Cælius Aurelianus, however, he began to nourish his patients as soon as the accession of the disease was diminished, not waiting till an entire remission; giving to some aliments on the first, to some on the second, to some on the third, and so on to the seventh day. It seems almost incredible to us, that people should be able to fast till this last-mentioned term; but Celsus assures us, that abstinence till the seventh day was enjoined even by the predecessors of Asclepiades.

The division of diseases into acute and chronic appears to have originated with him. The remedies which he employed (as we have seen) were chiefly dietetical; but he was no enemy to phlebotomy, though he discouraged vomiting and purgation: instead of the latter he recommended clysters. He was a great advocate for the use of cold water externally as well as internally; though he probably ingratiated himself with the Romans more by his free administration of wine in disorders where it had not formerly been allowed. Sprengel supposes him to have been the inventor of the *balnea penilis*, or shower-bath.

That Asclepiades, notwithstanding his arrogance, was a man of observation and discernment, is evident from his description of diseases; and from the fact, that he always continued to enjoy great reputation among the Roman people, and that his lectures, which, according to Pliny, embraced the three branches of pathology, midwifery, and pharmacy, were very numerously attended. Galen accuses him of humouring the caprices of his patients at the expence of his own better reason and judgment. The principles of this author's pathology gave the first outline of the *methodic* practice of physic, which was more fully developed by Themison and Theſſalus, and afterwards by Soranus.

The *METHODICS*, or *METHODISTS*, endeavoured to steer a course unconnected with the Dogmatists or the Empirics. They objected to the former sect, on account of their hypothetical principles; and to the latter, on account of the tedious manner in which they acquired their knowledge. In consequence of this, they began to classify and generalize; and observed, as they conceived,

two states or conditions of body which attended all sorts of complaints. To one of these states they gave the name of *strictum*, which implied a general constriction of the whole body; to the latter, the epithet of *laxum*, by which they meant a corresponding relaxation. Cases, however arose, that were not referrible to either of these classes: consequently, the Methodists were obliged to invent a third, which partook of the properties of both the others. Hence they admitted the contradiction of a state of *relaxed contraction*, an expression of which no conception can be formed.

It has been supposed, however, by M. Cabanis, that this mixed state of *laxum* and *strictum* meant an irregular distribution of vital power, or irregularity of tone. If his idea be correct, this class would comprehend all diseases, without the assistance of the other two; for we know of no disease that is not marked at times by an unequal distribution of vital energies. As to the *practice* of the methodists, it may be observed, that they wholly overlooked the healing powers of the system, and, without regard to the peculiar circumstances of the case, or the nature of the part affected, were solely intent on fulfilling those general indications that were conformable to their theory. It is true, that they paid particular attention to days; not, however, as connected with the doctrine of crises, for which the founders of this sect entertained a marked contempt; but only as affording them a measure of the duration of the disorder, and a guide for the method of treatment. In the first days, they followed the starving system; afterwards they pursued the supposed general indications of constricting, or of relaxing: during the exacerbation of the disease, they endeavoured to moderate the violence of it; during its decline, they supported the powers of the system by nutritive diet. This was their mode of proceeding in all acute diseases: but, in chronic complaints, to which it was less applicable, they had recourse to what they termed the *μετασχηματισμός*, or *re-incorporation*, of which the professed object was to restore the proper relations between the atoms and pores, and for which they prepared the patient by the *αναληψις*, or *resumptive circle*. It was, in fact, little else than their practice in acute diseases reversed: they first sought to strengthen the patient by a generous diet, and then they administered a succession of violent remedies, to subdue the original malady.

Among the disciples of Themison, one Thessalus of Trallis, a man of low birth and coarse manners, made himself conspicuous by the shameless audacity with which he sought to disparage the labours of others, arrogating to himself the title of *ἰατρονικης*, or Conqueror of Physicians, and that, it would appear, without the slightest pretensions to either learning or talents. (Plin. xxix. 1.) He held forth, that he could qualify any one for a physician in the space of six months, and actually succeeded in obtaining a great number of pupils; but they were from among the lowest order of artisans, such as rope-makers, weavers, cooks, butchers, fullers, and such like. These he took with him to visit his patients for the stipulated time; and then he conferred upon them the privilege of practising for themselves. From his time it became the custom for the Roman physicians to visit their patients attended by all their pupils; in allusion to which, we have the epigram of Martial:

*Languagebam; sed tu comitatus protinus ad me
Venisti, centum, Symmache, discipulis.
Centum me tetigere manus aquilone gelata:
Non habui febrem, Symmache: nunc habeo!*

I'm ill. I send for Symmachus; he's here,
An hundred pupils following in his rear,
All feel my pulse with hands as cold as snow:
I had no fever then; I have it now.

The methodic school acquired much greater repute from the labours of Soranus and Cælius Aurelianus. The former a native of Ephesus, who had studied at Alex-

andria, and came to Rome during the reign of Trajan; the latter an African by birth. Free from the prejudices which had disgraced his predecessors, Soranus cultivated the study of anatomy, and wrote a book on the female organs of generation, which is still extant, and displays considerable acquaintance with the subject. Many of his observations show that he was possessed of great sagacity and strength of judgment. To Cælius Aurelianus, on the other hand, we are indebted for an account of his doctrines and practice, and for one of the best works on medicine which have come to us from ancient times; written it is true, in a barbarous style, but highly deserving of perusal, on account of the accurate description of diseases, and the different methods of treatment, which it contains.

Anatomy and the other auxiliary sciences, though they had been so much neglected by the Methodists, were now receiving important additions from other quarters. Rufus of Ephesus, who lived in the time of the emperor Trajan, applied himself zealously to the dissection of animals, particularly of apes, and described from analogy the different organs of the human body. He traced the nerves from their origin in the brain, and divided them into those of sensation and those of voluntary motion. The heart he believed to be the seat of life, of animal heat, and the cause of pulsation; and he showed the difference of structure and capacity between the right and the left ventricle. The spleen he held to be an useless organ. Marinus, whom Galen calls the restorer of anatomy, and to whose labours he was himself probably indebted for much of his knowledge on the subject, rendered still greater services to the science. He investigated the absorbent system with great care, and discovered the mesenteric glands; he distributed the nerves into seven pairs: the N. palatinus (then called the fourth pair) was first described by him; and he is said to have been the discoverer also of the *par vagum*, which he termed the sixth pair. His numerous writings have all perished.

The study of the *materia medica*, and of the other branches of natural history, was prosecuted with no less vigour; and we owe to the first century of the Christian era the invention of many remedies which are still retained in our pharmaceutical systems. The elder Pliny, second only to Aristotle in the universality of his genius, but surpassing even that great man in his insatiable thirst for knowledge, had collected in his *Historia Mundi* all that the ancients knew of natural science. Dioscorides of Anazarba, devoting himself to botany and *materia medica*, produced a work which served for a guide in these sciences till a very late period. His descriptions of some of the more valuable drugs, such as myrrh, laudanum, asafœtida, ammoniac, opium, squills, and their different preparations, are entitled to great praise. The efficacy of several remedies, which he recommends, has been admirably confirmed by later experience, such as of the elm-bark in cutaneous diseases, of potash as a caustic, of the male fern against worms, &c. &c. Some of the contemporaries of Dioscorides, as Scribonius Largus, Xenocrates, and Andromachus, cultivated the *materia medica*, but with less success. To Menecrates, who lived in the reign of Tiberius, and who, according to an inscription in Montfaucon, appears to have been the author of 155 books, we are indebted for the invention of the diachylon-plaster; and Damocrates is well known as the author of several complicated remedies which bear his name. Herennius Philo, of Tarsus, is mentioned by Galen as the inventor of an anodyne composition, called, after him, Philonium, and which consisted of opium, euphorbium, and different aromatics; and Asclepiades Pharmacion was the introducer of numerous remedies from the animal kingdom, which, though long honoured with a place in our pharmacopœias, have now deservedly fallen into disrepute.

Before quitting this period of medical history, it will be necessary to say a few words respecting two other sects, which

which arose soon after the establishment of the Methodic school: we mean the Eclectic and Pneumatic sects. The founder of the latter, Aristæus of Cilicia, flourished as a physician at Rome about the middle of the first century, and distinguished himself by his opposition to the tenets of Asclepiades, and his attachment to the Stoical system: he extended the theory of pre-existent germs; treated the doctrine of the pulse with dialectic subtlety, referring its varieties to the exhalation of the *πνευμα* from the heart and arteries; and cultivated several branches of pathology; but was more successful in his dietetic researches, particularly with respect to the influence of the atmosphere.

His pupil Agathinus, endeavouring to reconcile his principles with those of the Methodic and Empiric sects, acquired the name of Episyntetic or Eclectic; and thus established the Eclectic system, on which, however, he does not appear to have conferred much repute by his own labours. That merit was reserved for Archigenes and Aretæus, who, adopting the leading tenets of the Pneumatic theory, gave it a more scientific form, and enriched it by many valuable observations. The former attempted to reform the language of medicine, but without much effect; for even Galen has occasion to complain of the obscurity of his phraseology; he was, besides, too fond of subtleties: but many of his practical observations, which Galen has recorded, are excellent. The merits of Aretæus, as a skilful and attentive observer, and as an elegant describer of disease, are familiar to every one. To Cassius the Iatrosophist, another Eclectic, we are indebted for many valuable pathological remarks concerning the diseases of association, and the sympathies of the nervous system.

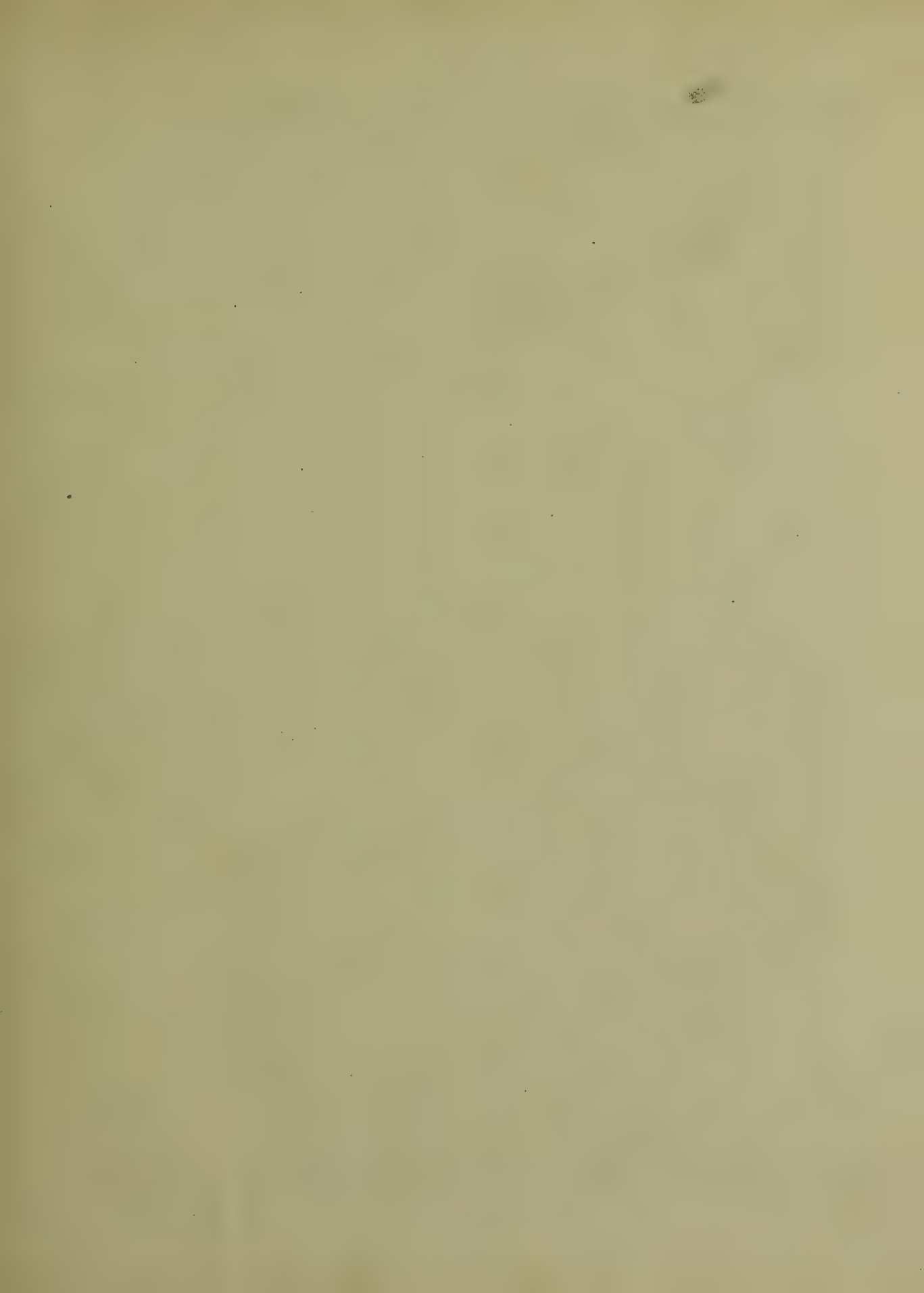
On the subject of Aretæus and Archigenes, Dr. Huxham has the following note: "It is pretty surprising that none should take notice of Aretæus Cappadox before Aetius Amidenus, in the fifth century; (he is indeed named in the Euporista attributed to Dioscorides, but few think that piece to be the genuine work of that author.) Neither Galen, Cælius Aurelianus, nor Oribasius, mention him; though so particular in enumerating all the physicians of note, antecedent to, or cotemporary with them. And yet Aretæus seems to have been a very considerable practitioner, and a man of great learning and judgment: he affects a very singular style, using many obsolete words, Homeric and Hippocratic phrases, and the Ionic dialect; which, at the time he wrote in, was almost entirely disused: for, notwithstanding the conceit of Vossius, he undoubtedly did not write till after the time of Nero. All this one would think should have made him remarkable; especially if he practised in or near Rome; which is not improbable, as he advises Roman wines to the sick; particularly the Falernian, Surrentine, Signine, and those of Fundi. But Galen and Aetius quote from Archigenes several passages, which are exactly the same, as to sense, doctrine, method of cure, and manner of expression, with what we find in Aretæus; only the latter gives them the Ionic turn. They both coincide in recommending some particular medicines, which are scarce to be met with in any others, particularly the external use of cantharides; which I think is not to be found in any preceding author, except Celsus. Did Archigenes then borrow from Aretæus, or the latter from the former? It is certain, Archigenes practised at Rome with a very great reputation, was a very celebrated physician and author, and as such is referred to by Juvenal, Galen, Cælius, Oribasius, Aetius, &c. He is strictly criticised by Galen, sometimes censured, sometimes commended, but never reckoned a mere compiler. Aretæus, on the contrary, is mentioned by none but Aetius and Paulus Ægineta; nay, which is not a little to be wondered at, he is not so much as found in Photius's Bibliotheca. This is really strange, and not easily accounted for, and would incline one to think that Aretæus borrowed from Archigenes; or ra-

ther transcribed and new-modelled him, giving him the Hippocratic diction and Ionic dialect. Possibly Aretæus might do by Archigenes something like what Cælius Aurelianus, not long after, did by Soranus: but, if so, he hath vastly much better gratified Archigenes than Cælius hath latinized (as he calls it) Soranus. Upon this supposition, we need not wonder at finding the Roman wines recommended in Aretæus, though he might practise and write in Cappadocia, or any where else, at the greatest distance from Rome. Be the matter as it will, in Aretæus we have a most valuable work, a most accurate description of diseases, and in general a very proper and judicious method of cure; and it is greatly to be lamented, that the work comes so maimed to us." Huxham on Fevers, Pref.

During this period, surgery received considerable improvement; particularly from the labours of Heliodorus and of Antyllus. Of the former, who was an eminent surgeon at Rome in the time of Trajan, Nicetas has preserved several practical observations on injuries of the head and diseases of the bones, which evince no mean proficiency in his art. The latter is perhaps still more deserving of notice, as being the first who gives any account of the extraction of the cataract: he recommends this operation to be performed while the cataract is small, being of opinion, that, when enlarged, it cannot be extracted without bringing the humours of the eye along with it. His directions concerning the preparation of plasters and ointments, and concerning the choice of veins in phlebotomy, are very minute. In dangerous cases of *cynunche*, he advises bronchotomy; and in *hernia humoralis* he operated by incision. Philagrius, who lived about the time of Valens, appears to have been the first who attempted to extract a stone from the bladder by the high operation. Aetius has also transmitted to us an account of the surgical practice of one Leonides of Alexandria, whose observations on hernia, scrofula, and glandular swellings, on hydrocele, and on inflammation of the scrotum, show considerable discernment. In cancerous affections of the breast, he resorted to amputation, and the actual cautery; in fistula, his method of operation differed but little from that recommended by Pott.

Having dispatched several names of smaller eminence, we now come to the illustrious *Celsus*, who lived at Rome, as some think, about the reign of Tiberius. His native place is unknown; and many writers have supposed that he was never in practice. Yet his minute descriptions of many pharmaceutical preparations could hardly have been acquired unless he had compounded them with his own hands; nor could his excellent directions in surgery have been penned without some knowledge of the manual operations. In many parts of his works, he follows the Father of Medicine so closely, that he has been called the Latin Hippocrates; though that name is equally applicable to him on account of the purity of his language. (See *CELSUS*, vol. iv.)

In his work on surgery, all the improvements from Hippocrates to his own days are collected; the most minute and trifling diseases are not omitted. An eminent surgeon of the moderns emphatically exhorts every person in that profession "to keep Celsus in his hands by day and by night." He follows Hippocrates, but with much improvement in his surgical directions; especially in the mode of trepanning, in applying splints, bandages, &c. in the manner of extending and fixing fractured limbs and likewise in the medical treatment of the patient. In luxations of the shoulder, he mentions several methods of giving force to the extension, and of replacing the dislocated bone. One method similar to that of Hippocrates was, to suspend the patient by the arm; the fore part of the shoulder, at the same time, resting upon the top of a door, or any other such firm fulcrum. Another method was to lay the patient supine, some assistants retaining the body in a fixed position, and others extending the arm in the contrary direction; the surgeon,



in the mean time, attempting, by his hands, forcibly to reduce the bone into its former place.

He made the distinction into simple and compound fractures, as it exists in the present day; and his directions in the cure of fractured ribs are extremely judicious. The different species of herniæ are well described by him; and he seems to have used a bandage and compress after the reduction of the bowels, on the same principle as we now use a truss. In some cases, after the return of intestinal ruptures, he diminished the quantity of loose skin, and formed a cicatrix, so as to contract over the part, to render it more rigid and capable of resisting. He describes various diseases of the genital parts, the hydrocele or dropsy of the scrotum, a difficulty of urine, and the manner of drawing off the water by a catheter; the signs of stone in the bladder, and the method of sounding or feeling for that stone. Lithotomy was at that time performed by introducing two fingers into the anus; the stone was then pressed forward to the perinæum, and a cut made into the bladder; and by the finger or by a scoop the stone was extracted. He describes the manner of performing this operation on both the sexes, of treating the patient, and the signs of recovery and of danger.

Celsus gives excellent instructions with regard to inflammation in general; and mentions some useful topical applications in ophthalmia. The operations for the cataract (which consisted in depressing the crystalline lens), and for fistula, are likewise described by him; as also the mode of performing the operation of paracentesis. The external application of arsenic as a cure for cancer originated with Celsus. In external gangrene, he cut into the sound flesh; and, when the disease, in spite of every effort, spread, he advised amputation of the member. After cutting to the bone, the flesh was then separated from it, and *drawn back*, in order to save as much flesh as possible to cover the extremity of the bone. He describes the symptoms of that dangerous inflammation the *carbuncle*, and directs immediately to burn or corrode the gangrened part. To promote the suppuration of abscesses, he orders poultices of barley-meal, or of marshmallows, or the seeds of linseed and fenugreek. He also mentions the compositions of several repellent cataplasms. In the *erysipelas*, he applies ceruse, mixed with the juice of Solanum, or nightshade. He is very diffuse in those parts of his works which relate to pharmacy, giving formula for a great many external and internal remedies now deservedly abolished.

Though Celsus followed the practice of Hippocrates in many respects, yet he very much differed from him in others. He particularly ridiculed his doctrine of critical days, which he attributed to an absurd application of the Pythagorean doctrine of numbers; and he differed from that physician in regard also to bleeding; for he held it dangerous to take much blood from patients at once, and rather preferred the abstraction of it at repeated intervals. In regard to abstinence, he seems to have followed Asclepiades, enjoining the sick to endure hunger and thirst during the first days of their illness, and afterwards allowing them plenty of food. He entirely disregarded the indications of the pulse, from having observed that it was accelerated or depressed by many adventitious circumstances, as well as from having found it very different in complaints of a similar nature.

The most considerable of the Roman pathologists, and the last of any great eminence, was GALEN, who flourished about a hundred and thirty years after Celsus, and was physician to the emperor Marcus Aurelius. This great man was considered for many centuries afterwards the most infallible authority in all matters relating to pathology. Impressed at an early age with the important truths contained in the writings of Hippocrates, he viewed with contempt and disgust the jargon and obscurity which enveloped them in the schools of medicine. Accordingly he became himself the expositor of Hippocrates. He repeated and extended his observations, presented his opi-

nions in new lights, and supported his doctrines with all the aids which were derivable from speculative reasoning or the comparison of facts. Yet Galen in some measure fell into the same error of which he accused his predecessors and contemporaries. He observed the naked facts and simple truths related almost without comment by the coarse sage. He applied himself too much to explain, arrange, and systematize, a very small stock of information; and, by endeavouring to illustrate a very uncertain science by means of others not more exact, he permitted his imagination to frame hypotheses in the highest degree gratuitous and assumptive. These observations are fully exemplified by the following sketch of his system.

He first begins with establishing four qualities in the animal body; heat, cold, moisture, and dryness. The peculiar combinations which these qualities undergo, or in other words the changes which may be rung on them, produce eight constitutions, or temperaments; i. e. hot, cold, moist, and dry; hot and moist, cold and moist, hot and dry, and cold and dry. (See GALEN, vol. viii.) *Idiosyncrasy* is that temperament which cannot be referred to any of these qualities, and is therefore supposed to arise from occult causes. With Hippocrates, Galen admitted the operation of Nature; but to this agent he added three other faculties, or, as we should call them, vital properties. The first and most important, he calls the *animal faculty*; it has its seat in the brain, performs the operations of mind, and by means of the nerves distributes the properties of motion and sensation to all parts of the body. The second is called the *natural faculty*; it has its seat in the liver, and is the principal agent in growth, generation, and nutrition. The third, denominated the *vital faculty*, is lodged in the heart, and from thence, by means of the arteries, disseminates heat and vitality through the whole system. These three faculties were acted upon by Nature as a *primum mobile*. Their production was supposed to be owing to the agency of certain *spirits*, or *subtle vapours*, which he likewise divided into three kinds, bearing the names of vital, natural, and animal. Galen admits the existence of the four humours of blood, phlegm, yellow, and black bile, first insisted on by Hippocrates. With that physician he likewise divides the body into three component parts; spirits, humours, and parts, or, as we call them, *solids*. The last-mentioned substances he divides into organical and similar.

It were useless to enter into a detail of the minute distinctions of diseases and their causes in which Galen has indulged. Suffice it to say, that the increase, deficiency, or irregular distribution, of the different humours, qualities, &c. which we have enumerated, was regarded by him as the essential cause of disease; consequently the abstraction of redundant, the reproduction of deficient, or the correction of peccant, humours, formed the principal indications in his pathology. In anatomy and physiology, Galen discovered or arranged many important facts. His assiduous dissections of animals furnished him with many useful observations: he likewise preserved in his writings much of the anatomical knowledge of the Alexandrian school; and has indeed corrected by experiment the errors into which that school had fallen, particularly in regard to the circulation of the blood. Hippocrates had asserted, that all the vessels communicated with each other, and that the blood underwent a kind of flux and reflux to and from the heart, like the ebbing and flowing of the sea; and he mentions the throbbing of the temporal arteries, as an evidence of this fact. The anatomists at Alexandria had adopted a different opinion; as they found the arteries empty, and the veins containing blood, in their dissections, they imagined that the former were tubes for the distribution of *air*, (and gave them that name which they have borne ever since;) and that the veins were the only channels for the blood. The heart of man consisting of two sets of cavities not communicating with each other, and its connexion with the lungs, were to them delusive circumstances, and seemed to favour their opinions.

nions. It is true they sometimes found blood in the arteries, and in the left cavities of the heart; but then they believed that the air or spirit had escaped, and that the blood had oozed through the sides of these air-vessels, and supplied its place. Galen refuted this opinion by experiment. He laid bare one of these vessels in a living animal, and by tying it in two places, and opening it between the ligatures, he ascertained that it contained blood and nothing else. He therefore concluded, that both veins and arteries served the same purpose, that of distributing blood for the supply of the body, but that the florid arterial blood contained more air than the purple blood of the veins. We need hardly remark, that Galen did not understand the natural course of the blood, though he had thus made known its containing vessels.

Galen did not apply himself much to the surgical department of the art: however, he occasionally performed the operation of arteriotomy, and opened the jugular veins; and he described with accuracy the different kinds of hernia.

In a history of this kind it seems right to mention the effect of anatomical studies on the mind of Galen. After contemplating the structure of the bones of a skeleton, and their adaptation to their different functions, he breaks out into an apostrophe, which has been much admired, and in which he is said to have exceeded any ancient in pointing out the nature, attributes, and proper worship, of the Deity. "In explaining these things," he says, "I esteem myself as composing a solemn hymn to the author of our bodily frame; and in this I think there is more true piety than in sacrificing to him hecatombs of oxen, or burnt-offerings of the most costly perfumes: for I first endeavour to know him myself, and afterwards to show him to others, to inform them how great is his wisdom, his virtue, his goodness."

Medicine improved very slowly after the time of Galen; his successors were more employed in compiling and commenting on the works of their predecessors, than in endeavouring to extend the bounds of science by original observation. Among the most distinguished of these we may record the names of Oribasius, Aetius, Alexander Trallian, and Paulus Ægineta.

Oribasius flourished about the year 360, and was physician to the emperor Julian. Though commonly reckoned a Sardinian, he was born at Pergamus, and bred up, together with Magnus and Ionicus, in the school of Zeno the Cyprian, who taught then at Sardis, though afterwards he removed to Alexandria, where he became a famous professor. Eunapius represents Oribasius as the greatest scholar and physician of his time, and a very engaging and agreeable man in conversation. He describes him as no less considerable in his interest than in his learning: according to his account, he contributed very much to the advancement of Julian to the empire, who in return made him quaestor of Constantinople, and who, as appears by one of his letters, had an entire confidence in him. In the succeeding emperor's time, through the envy of his enemies, he fell into disgrace, had all his estates confiscated, was banished, and delivered into the hands of barbarians; amongst whom, in a little time, by his courage and skill, he gained so much love and reverence, that they, seeing what great cures he performed, adored him as a god. At last he was recalled by the Roman emperor, and flourished in reputation and riches at the very time when Eunapius wrote this account, which must be near the year 400.

Oribasius wrote seventy (according to Photius) or (according to Suidas) seventy-two books of collections, which he compiled not only from Galen, but from all the preceding physicians, and his own experience, at the desire of Julian; the fifteen first of which are only remaining, and two others treating of anatomy. Afterwards he made an epitome of this great work, and reduced it into nine books for the use of his son, Eustathius. Paulus mentions this epitome; but it is now lost, as are some

other tracts which Suidas takes notice of. These works, though chiefly compilations, are by no means without their use to the medical student; for both Oribasius and Aetius have preserved some fragments of antiquity, and those of some value, which are no-where else to be met with; that is, they compiled from the now-lost works of Galen and others, and added much original matter of their own. We will give only one instance of what is either omitted by Galen, or is lost together with some other of Galen's works; namely, the first description of the salivary glands, which is this: "On each side of the tongue, lie the orifices of the vessels, which discharge the spittle, and into which you may put a probe. These vessels take their rise from the root of the tongue, where the glands are situated. They rise from these glands, in much such a manner as arteries usually do, and convey the salivary liquor, which moistens the tongue, and all the adjacent parts of the mouth." Oribasius, lib. xxiv. c. 8.

Oribasius, either from Apollonius or himself, speaks very fully of the good effects of bleeding by way of scarification, a thing little taken notice of by former writers: and assures us, from his own experience, how successful he had found it in a suppression of the menses, defluxions of the eyes, headache, straitness of breathing, even when the person was extremely old. He tells his own case particularly, when the plague raged in Asia, and he himself was taken ill, that the second day he scarified his leg, and took away two pounds of blood; by which method he entirely recovered, as did several others who used it. Here we may observe, that this was a different method of scarifying from that performed by the help of cupping. The Arabian physicians seem to have had a notion only of the latter practice: but, from this place, as well as from some passages of Galen, it is plain, that the ancients made deep incisions into the skin by the knife; and therefore thought, by the large quantity of blood they could draw off, that this method was equivalent to opening a vein. The Egyptians make use of it to this very day; and Prosper Alpinus describes at large the apparatus: they make first a strait ligature under the ham, then rub the leg, and put it into warm water, and beat it with reeds to make it swell, and so scarify. A process in every particular differing from cupping; and therefore, in the cure of giddiness, Oribasius himself speaks of them as two distinct operations.

We find in this author the first account of a strange and surprising distemper *Λυκανθρωπία*, a species of melancholy and madness, which he describes thus: "The persons affected go out of their houses in the night-time, and in every thing imitate wolves, and wander among the sepulchres of the dead till day-break. You may know them by these symptoms: their looks are pale; their eyes heavy, hollow, dry, without the least moisture of a tear: their tongue exceedingly parched and dry: no spittle in the mouth, extreme thirst; their legs, from the falls and bruises they receive, full of incurable sores and ulcers." Aetius gives the very same description, with some little variation; only calls it *Κυνανθρωπία* as well as *Λυκανθρωπία*, and observes it prevails most in February. Aetius takes this passage, as he says, that is, makes a paraphrase of it, from Marcellus Sidetes, an author who lived under Adrian and M. Antoninus; and who wrote forty-two books concerning distempers, in heroic verse. Paulus has transcribed the same account of this disease word for word. The Greek term used to denote this disease expresses the nature of it very justly; and yet Vanderlinden is so careless a writer, that he makes it a synonymous term for the madness of the wolves themselves. We conceive the disease to have been a species of mania, in which the association of the mind with deceased relatives produced an inclination to wander among the tombs.

Of the epilepsy, Oribasius describes the cure both in the acute and the chronical sort; that is, in the fit as well as out of it. When the fit is over, he orders bleeding; and,

and, after four or five days, when the body is a little recruited, purging; three days after, cupping and scarifying. He repeats these evacuations, and sometimes sinapisms, at convenient distances, and in the intervals gives proper nourishment, and uses warm medicines, such as castor, mint, rue, and the cyrenaic juice. Whether this be taken out of Posidonius, as, by reading Aetius upon the same head, there may be some reason to suspect, we cannot tell; but the method is certainly right, and agreeable to a rational practice. The epitome of what Galen had said upon the same argument, in the next chapter, is by no means so full and circumstantial. These few instances will be sufficient to show, that even this author, though he be chiefly a collector, may furnish us with some new and useful reflections in physic; and he who reads him with this view, may find some other passages of the same kind, not to be met with in the more ancient writers.

Aetius lived very near the end of the fifth or the beginning of the sixth century. He was a native of Amida in Mesopotamia, studied at Alexandria, and was probably a Christian, which perhaps may be the reason why many have confounded him with another of that name, a famous Arian of Antioch, who lived in the time of Julian. In some manuscripts he has the style of Κομης Οψικίου, *Comes Obsequii*; i.e. the chief officer of those who used to go before the emperor, as his attendants and harbingers. We find in him several particularities relating to the Egyptian pharmacy. He has collected a great multitude of receipts, particularly those which had been much celebrated, or used as nostrums by their inventors. Some of these he seems to mention with no other design than to expose them, and to let us see the extravagant rate people were induced to pay for them: for instance, the collyrium of Danaus, which was sold in Constantinople for one hundred and twenty numismata, and with great difficulty obtained from him; the colical antidote of Nicofratus, called very presumptuously Isotheos, bought for two talents. He seems also to be the first Greek writer among the Christians who gives us any specimen of medicinal spells and charms, so much in vogue with the old Egyptians; such as that of St. Blasius, in removing a bone which sticks in the throat; and another in relation to two fistulæ.

The following sample of a remedy for the gout is remarked by Dr. Freind as being the first of its kind in the history of physic. It is an external medicine: he calls it the *grand dryer*: the patient is to use it for a whole year, and observe the following diet besides in each month. He calls the months by the Alexandrian or Egyptian names, but in English, the direction runs thus: "In September to eat and drink milk: in October to eat garlick: in November to abstain from bathing: in December not to eat cabbage: in January to take a glass of pure wine in the morning: in February to eat no bete: in March to mix sweet things both in eatables and drinkables: in April not to eat horse-radish: nor in May the fish called polypus: in June to drink cold water in a morning: in July to avoid venery: and lastly, in August to eat no mallows." This may give us some idea of the quackery of those times.

In the works of Aetius we find many observations omitted by Celsus and Galen, particularly on surgical operations and on difficult parturition. He first took notice of the Dracunculus, or Guinea worm, not known to Galen. It is curious to remark the excessive extent to which the actual and potential cauteries were carried in the time of this practitioner. In a palsy, he says, that he should not at all hesitate to make an eschar either way, and this in several places; one in the nape, where the spinal marrow takes its rise, two on each side of it; three or four on the top of the head, one just in the middle, and three others round it: he adds, that, in this case, if the ulcers continue running a considerable time, he should not doubt of a perfect recovery. He is still more particular when he comes to order this application for an in-

veterate asthma, after all other remedies have been tried in vain. One, he says, should be made on each side, near the middle of the joining of the clavicle, taking care not to touch the wind-pipe: two other little ones are then to be made near the carotids under the chin, one on each side, so that the caustic may penetrate no further than the skin; two others under the breasts, between the third and fourth ribs; and again, two more backwards towards the fifth and sixth ribs. Besides these, there ought to be one in the middle of the thorax, near the beginning of the xiphoid cartilage, over the orifice of the stomach; one on each side between the eighth and ninth ribs; and three others in the back, one in the middle, and the two others just below it, on each side of the vertebræ. Those below the neck ought to be pretty large, not very superficial, not very deep: and all these ulcers should be kept open for a very long time.

Alexander, who flourished in the reign of Justinian, is a more original author than either of the two former. He was surnamed Trallianus, being born at Tralles, a famous city of Lydia, where the Greek language was spoken in great perfection: he lived in the sixth century, some time after Aetius. He was a man of very extensive practice and of great fame, whence he was emphatically called Alexander the *physician*. His therapeutical directions are very full and explicit, and were chiefly the results of experiments made by himself. His practice was remarkable for the judicious introduction of aperient medicines in cases of fever, and the use of bleeding in syncope, a disease which, according to his description, seems to apply to the epilepsy of our own times. But the most valuable part of Alexander's writings was his book on gout, for the cure of which he recommends purging, and particularly with the herb *hermodactylus*, which is supposed to be the *colchicum* lately brought up again and acquiring great reputation in the cure of the same complaint. He is the first author who recommended the use of rhubarb, which he had recourse to in weakness of the liver and in dysentery. Alexander is recommended by Dr. Freind as one of the best practical writers among the ancients, and well worthy the perusal of any modern.

Paulus, the fourth and last of the old Greek writers, was born in the island Ægina, and lived in the seventh century, though placed by Mr. le Clerc as high as the fourth. He was a great traveller, and had opportunities of seeing an extensive practice in different countries. He transcribes a great deal from Alexander and other physicians. His descriptions are short and accurate. He treats particularly of women's disorders; and seems to be the first instance upon record of a professed *man-midwife*, for so he was called by the Arabians: and accordingly he begins his work with the disorders incident to pregnant women. He treats also very fully of surgery, and gives some directions, according to Dr. Freind, not to be found in the more ancient writers. He directs the manner of extracting darts, and of operating for hernia; he describes one species of aneurism; treats of the mode of opening the jugular veins, and also the arteries behind the ear. He likewise described the operation of bronchotomy, and showed the propriety of performing it in cases of suffocation. This operation had been derided by Aurelianus, and some severe objections were started against it by Aretæus. It was first performed by Antyllus, from whom Paulus copied it.

With Paulus closes the period of the Greek *classical physicians*: so we venture to call them; because, if we compare any of the Greek writers on pathology, from the very first of them, Hippocrates, to the time we are now speaking of, with the very best of their contemporaries in any art or profession whatever, they will be found not at all inferior to them either in the disposition of their matter, the clearness of their reasoning, or the propriety of their language. Some of them have even written above the standard of the age they lived in; an incontestible instance of which is Aretæus. Galen, also, was not

not the only best physician, but the best scholar and critic, of his time. So great an honour have these authors done to their profession, by being versed in other arts and sciences as well as their own. And the great St. Basil, whom his own continual illness made a physician, and who has a great many allusions and similes taken from that art, was (to use the words of Photius) for the neatness, the propriety, the perspicuity, and fluency, of his style, one of the best writers among the fathers; as St. Luke's Greek comes nearer to the ancient standard than that of the other evangelists.

We cannot omit saying something of one author more, whom we may reckon one of the *ancients*, though not properly a writer in physic; Nemeseus, bishop of Emessa, who wrote a treatise concerning the nature of man, near the end of the fourth-century: because his Oxford editor ascribes two discoveries to him, one of which was the most considerable that ever was made in physic. The first is concerning the bile, "which is constituted (as Nemeseus says), not only for itself, but for other purposes; for it helps digestion, and contributes to the expulsion of the excrements; and therefore it is in a manner one of the nourishing powers: besides, as a vital faculty, it imparts a sort of heat to the body. And for these reasons it seems to be made for itself; but, because it purges the blood, it seems to be formed for the sake of the blood." Here, says the editor, the system of the bile is plainly and accurately delivered; that very system which Sylvius de le Boe with so much vanity boasted he had invented himself in 1658. And indeed so far is true, that here is the intire foundation of Sylvius's reasoning: and, if this theory be of any use in physic, Nemeseus has a very good title to the discovery. But there follows a much more material point; and the same editor contends, that the circulation of the blood, an invention which the 17th century so much boasts of, was known to Nemeseus, and described in very plain and significant terms, which are these: "The motion of the pulse takes its rise from the heart, and chiefly from the left ventricle of it: the artery is with great vehemence dilated and contracted, by a sort of constant harmony and order. While it is dilated, it draws the thinner part of the blood from the next veins, the exhalation or vapour of which blood is made the aliment for the vital spirit. But, while it is contracted, it exhales whatever fumes it has through the whole body, and by secret passages. So that the heart throws out whatever is fuliginous through the mouth and the nose by expiration." Upon this single slender proof does he attribute this great discovery of the circulation to Nemeseus; and those who have insisted that it was known both to Hippocrates and Galen, have full as good arguments on their side. But it is evident enough, from this very description, and from what the same author says of the liver in the same chapter, that it ministers nourishment to the body by the veins, that Nemeseus had no idea of the manner in which the circulation of the blood is really performed.

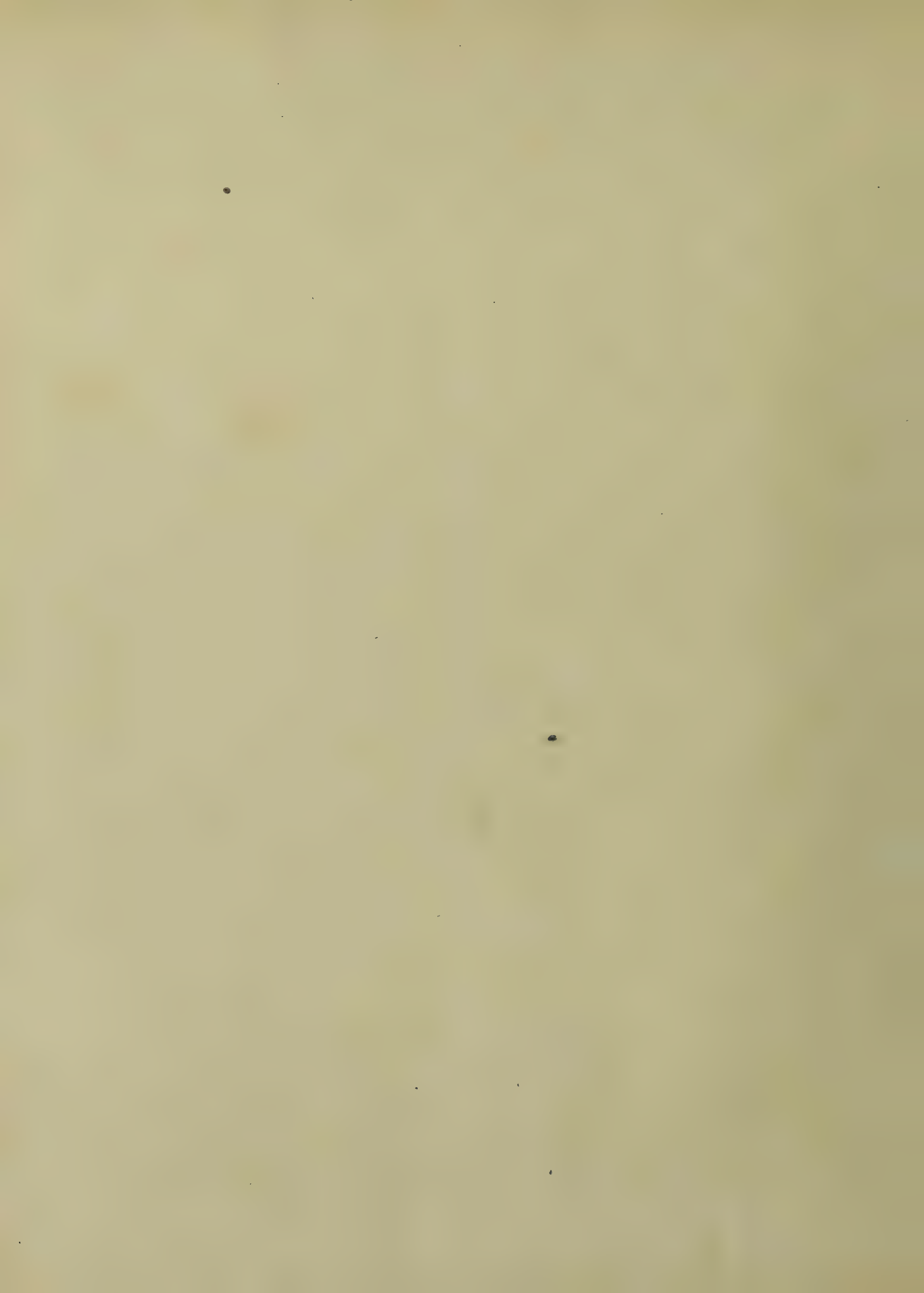
To resume the thread of our history, we must come now to some other Greek writers of a lower rank and a later date: but, as the greatest part of these contain little that is new, we shall give a very short account of their works, and only be as particular as we can in adjusting their several ages; concerning which all our authors have left us in great confusion; though indeed this is the less to be wondered at, considering that from the time of Agathias, that is, from the year 560, to the reign of Isaac Comnenus in 1060, there is a chasm of five hundred years in the Grecian history; so that we know very little of all that interval, except what some slender account of the reigns of a few emperors, chiefly Mauritius and Heraclius, furnishes us with.

Palladius, called Sophist or Iatrosophist, was bred, as he himself seems to hint, at Alexandria. We place him first among the more modern Greeks, but cannot agree with the *Bibliotheca literaria*, which computes that he flourished about the year 126.

Albinus better places him after Galen, i. e. after the year 200. In fact, he quotes Galen very often; and it may be proved, that he lived not only after Galen, but after Aetius and Alexander too, whose words he frequently makes use of. His Commentaries upon Fractures are imperfect; however, what of them remains is enough to let us see that we have no great loss by it. In those upon the Epidemics, he with great perspicuity and exactness, illustrates not only Hippocrates, but several passages of Galen; and observes particularly, that the stone increased much in his time, and was less curable; and he imputes this to the luxury of the age, to much eating, and want of exercise. He is the first author now extant who has treated professedly of urine: and he has very well explained the causes of its colour and consistence; what distempers these respectively indicate, and what prognostics may be drawn from them. There are several passages expressed in the same words, as we may read in a book upon the like subject, falsely ascribed to Galen. He has written in much the same manner concerning the fæces.

Stephen, the Athenian or Alexandrian, called sometimes the one and sometimes the other, from the place either of his birth or his residence, wrote a commentary upon Galen's First Book to Glaucio; a book that does not seem to want any comment to make it more intelligible. But there is reason to think, that the chief physical learning of his time consisted in reading upon Galen; and Abi Osbeia, the Arabian biographer, tells us of seven Alexandrian physicians, among which Stephanus is one, who digested the works of Galen into sixteen books; which again, according to the different matter, they divided into seven classes: that these were the only books they studied, and that in their turn they made it their whole business to comment upon them and explain them to their auditors. And therefore it is not at all probable that he lived in the third century, as Mr. le Clerc, without any authority, supposes; and, indeed, it is plain, from this very comment of Stephen, that he was much more modern, for he himself mentions very ancient expositors of this particular book of Galen; and, in section 140, concerning a quartan, he seems to allude to a wrong interpretation which Alexander had made of Galen's sense in this place. If this writer be the same with Stephen the chymist (as he is called), his age is easily known, for that author dedicates his work, de Chrysopoeia, to Heraclius, and this will make his age consistent with what has already been observed. We read of a Stephen too, and an Alexandrian likewise, in this very emperor's reign, who was a famous astrologer, and foretold the great power to which the Saracens should arrive, as they did in some years after. Vanderlinden calls Stephen the last of the old Greek authors, though, if this account of his age be true, it will appear that several others wrote in Greek after that time.

Of these Nonus seems to be in order next, who composed a sort of physic-manual, in which is contained some short account of most distempers and their cure. He inscribes it to Constantine Porphyrogenitus; who, according to Lambecius, was the seventh emperor of that name, the son of Leo, and died in the year 959, and who, as he had some tincture of learning himself, was a great patron of it. But Jer. Martius, who published an edition of this author in Greek and Latin, thinks the Constantine here meant (a Porphyrogenitus as well as the other) was the son of Constantine Ducas, who died in 1067; for this reason, that Ducas, though unlearned enough himself, was an admirer and encourager of letters, and had this saying often in his mouth, "That he had rather be ennobled by learning than by sovereignty." To which of these Constantines Nonus inscribed his work, is not very material; I shall only take notice, that we may collect from Anna Comnena's history, that in the interval between these two emperors, learning was extremely declining, if not quite extinct.



This epitome is little else than a transcript from Aetius, Alexander, and Paulus. And he is so free with the labours of his predecessors, that he even assumes their experience to himself. He gives a particular description of melancholy, and, with the air of a great practitioner, is full of the good effects he had seen himself from the Armenian stone, and therefore prefers it to white hellebore: he talks very sensibly about the bite of a mad dog, and remarks, that when once a hydrophobia comes on, he never, in all his experience, knew one recover; and yet every word in the first case is transcribed from Alexander, and in the latter from Paulus.

Michael Psellus lived not long after Nonus, and inscribed the book which he put together, Concerning the Qualities and Virtues of Aliments, to Constantine the emperor. Lambecius thinks this Constantine is he who is called Monomachus, and who reigned from 1043 to 1055; but if, according to his account, Psellus died in 1078, it is at least as probable it might be Constantine Ducas: and what adds to the probability is, that it appears from Zonaras, he was preceptor to Michael Ducas, that emperor's son. The same Zonaras gives this writer the character of a person wholly unfit to have the tuition of a prince, as being not at all qualified in any sort of letters; but Anna Comnena, who lived a few years after him, on the contrary, extols him as one who was a perfect master of philosophy, one of great natural parts, and of profound learning both in Greek and Chaldaic. The same encomiums are bestowed upon him by Leo Allatius, who (by his dissertation de Psellis) seems to be fond of this very name, and describes him as one of the first rank of writers. However there is nothing to be found in his treatise which can do any author much credit; for it is only a collection from the elder Greek physicians, who themselves collected this part of knowledge chiefly from Galen, as he had done before from Dioscorides. He was persecuted and stripped of every thing by Nicephorus Botoniatas, turned monk, and soon after died, very old. There are many other tracts writ by this author, an account of which we may read at large in Leo Allatius.

And yet, though Psellus was such a compiler as has been mentioned, Simeon of Antioch, writing upon the same subject, but indeed in a very impure style, copied mostly from him, which is the more extraordinary, since the book he transcribed from was then fresh in every one's memory: for Simeon must have been his contemporary, though no doubt younger, because he dedicated this treatise to Michael Ducas called Pariphanaceus, who resigned the empire in 1078, the very year in which Psellus, as we are informed, died. There are many other works of this Simeon, particularly we owe to him the translation (out of Arabic into Greek) of a very fantastical book. Concerning the Wisdom of the Indians, which Perzoes, a physician, collected at the desire of Chofroes, king of Persia.

Actuarius, the son of Zachary, so called without doubt from the employment he held as chief physician to the emperor, is an author of a better character than those we have just mentioned. He wrote several treatises, in which occur many things worth our reading. He practised at Constantinople, and, as it appears, with some degree of credit; his six books concerning the method of cure being compiled for the use of one of the chief officers at court, the lord chamberlain, who was sent upon an embassy into the North. Fabricius by mistake makes Actuarius himself the ambassador. In these books, though he chiefly follows Galen, and very often Aetius and Paulus, without naming them, yet he makes use of whatever he finds to his purpose, both in the old and modern writers; as well barbarians as Greeks; and, to do him justice, we may find several things in him not to be met with any where else. Thus, for instance, he is the first Greek writer who has mentioned or described the milder sorts of purging

medicines, such as cassia, manna, senna, myrobalans: the two last he says were brought from foreign parts to his country, i. e. from Syria and Egypt. Senna he describes as a *fruit*, by which, no doubt, he means the same thing as Serapion does by the *vagina*, and Mesue by the *folliculus*, which contains the seed; for neither these authors, nor Actuarius, mention any thing of the leaves; and, though these are chiefly in use now, yet the pods are sometimes made use of too; and, by what we can learn from these writers were probably the only part of senna which was then administered in physic. Another thing which we meet with in no Greek writer before Actuarius, is the mention of distilled liquors, as distilled rose-water, &c. &c.

There are not proofs clear enough to point out to us the time where we might fix the precise age of this writer. He is commonly, but without any good authority, reckoned to have lived in the eleventh century by some, and in the twelfth by others. Lambecius brings him down as low as the beginning of the fourteenth; but from his style we may conclude that he was more ancient; for, if we compare him either with Psellus or Simeon, he will appear to have a much greater purity in his diction; and indeed after 1200, we shall scarce meet with any writer but who has some mixture of modern Greek, or some barbarisms taken from other languages.

We have brought down this section to a much later period than we intended, in order to complete the history, as far as we could ground it upon any good authorities, of the few Greek physicians who appeared after the time of Galen. There has been a prevailing opinion that nothing was done among the ancients towards advancing this art, but what is comprised in the voluminous works of that great man. What gave the first rise to such a notion probably might be this: that because those who succeeded Galen did transcribe a great deal from him, many were inclined to think, without giving themselves the trouble of examining and comparing their writings, that they did nothing else but transcribe. And no editor of these authors has yet taken the least pains to undeceive them in this point, what has been left us by way of comment, being chiefly employed in grammatical or critical remarks, without any view of explaining what relates either to the history or the practice of physic in the time of each respective writer. But we have given some instances, and more might be given, where the physicians we have been speaking of have described distempers which were omitted before; where they have taught a new way of treating old ones; where they have given an account of new medicines, both simple and compound, and where they have made large additions in the practice of surgery. And, if these be any real improvements of the art, it cannot be denied but that physic was still making a progress till the year 600. As to surgery in particular, we may, without derogation to the more ancient writers, affirm, that whoever carefully looks into Aetius and Paulus, will be convinced that a great many improvements have been made in that branch of pathology which are not recited in Galen or any where else. And in general it may be remarked, once for all, that the writers mentioned in this period, till the beginning of the 7th century, and those whose remains they have preserved, were not such collectors (which is commonly the case) as had little knowledge of the subject they undertook to treat of, but were every one of them men of experience and practice. And, if the later Greek writers who succeeded, were persons of a lower character, and made little advancement in the art they professed, it is the less to be wondered at, since, for many centuries, universal ignorance prevailed over all the world; and it could not be expected that physic should make any progress, when all other sciences and all sorts of learning were almost quite extinct, or that it should be exempt from the common calamities of those times.

II. From the DARK AGES to the end of the SIXTEENTH CENTURY.

After the downfall of the Roman empire, and when the inundation of Goths and Vandals had almost completely exterminated literature of every kind in Europe, medicine, though a practical art, shared the same fate with more abstract sciences. Learning in general, banished from the seat of arms, took refuge among the eastern nations, where the arts of peace still continued to be cultivated. The Arabians, from their vicinity to Alexandria, from their intercourse with the sect of Nestorians and with the Greek philosophers, who had been compelled by the persecution of Justinian to take refuge in the Mahometan states, had acquired a taste for literature and the sciences. The knowledge which they possessed of medicine is a subject of curious inquiry. In the anatomical branch, they did little more than translate and paraphrase the Greek writers. The errors which their originals had made in anatomy became sacred; and, if the Arabs have described certain parts of the body with more exactness than Galen, these descriptions were only conjectures, or the consequence of the study of some Greek authors who have not descended to us. The Mahometan laws prohibit dissections, because, in the opinion of the Mussulmans, the soul does not depart from the body at the moment of death: it passes from one member to another till it centers in the breast, where it remains for a considerable time. The examination by the angels, of the deceased person in his tomb, could not be made on a mutilated corpse. The physicians of the Arabs studied, therefore, only skeletons in the cemeteries, and in most surgical cases implicitly followed the ancients.

Chemistry, with the rest of the sciences, being banished from the other parts of the world, also took refuge among the Arabs. Geber in the seventh or eighth, and others in the ninth, century of the Christian æra, wrote several chemical, or rather alchymical, books, in Arabic. In these works of Geber are contained such useful directions concerning the manner of conducting distillation, calcination, sublimation, and other chemical preparations, and such pertinent observations respecting various minerals, as justly seem to entitle him to the character which some have given him of being the father of chemistry, the discoverer of the key to the richest treasures of nature, though he himself modestly confesses that he has done little else than abridge the doctrine of the ancients concerning the transmutation of metals. He mentions several mercurial preparations, such as the corrosive sublimate and red precipitate, nitric acid, muriatic acid, and many other chemical compositions.

The Herbal of Dioscorides was enriched by the Saracens with the addition of two thousand plants, and their knowledge of the vegetable world enabled them to insert in their pharmacopœia several remedies which had been unknown to the Greeks. One great difference between the Grecian and Saracen dispensaries was, that the medicines in the latter were of a milder nature than those in the former: another difference was the common use of sugar in lieu of honey. Dioscorides, speaking of the various species of honey, says, that there is a kind of it in a concrete state, called, *saccharon*, which is found in reeds in India and Arabia Felix: he also describes its medicinal virtues. Galen writes upon it nearly in the same manner; but the history of the artificial preparation of sugar, by boiling or other means, was very imperfectly known. The Saracens appear, however, to have understood the art; for, by a mixture of sugar with other ingredients, they made various medicines with which the ancients were unacquainted.

The caliphs had done much to render the Arabians thus eminently learned. In the seventh century, Almanzor, and his famous successor Harun Al Raschid, patronised several medical schools, founded hospitals and academies, and assiduously cultivated the introduction of Grecian learning. Unfortunately, the Arabian physicians

mixed absurd and mysterious superstitions with the knowledge they thus acquired. The popular taste for the marvellous induced them to resort to every means of imposing on the vulgar. Astrology was introduced, particular positions and appearances of the stars were studied in dangerous cafes, and amulets were in the possession of every successful and popular practitioner of medicine.

As discoverers and inventors, the Saracens have few claims to praise, but they formed the link which unites ancient and modern literature; and, since their relative situation with Europe somewhat resembled the relative situation between Egypt and Greece, they are entitled to a portion of our respect and gratitude. When the princes of the west began to emerge from barbarism, they correctly acknowledged the Moors to be the great depositaries of knowledge. Many useful treatises, now lost in the original, for example the fifth, sixth, and seventh, books of the Conic Sections of Apollonius Pergamus, and some of the commentaries of Galen and Hippocrates, were preserved in the language of the Saracens, or Arabians, as they are indifferently called.

Among the most eminent of the Arabian physicians, we may reckon Rhazes, Avicenna, Alucasis, and Avenzoar.

Rhazes, one of the oldest and most distinguished, was born at Rei, in the province of Chorasán, about the year 853. There was a school in his native town, at which he received his early education; but he is said not to have commenced the study of medicine till somewhat late in life, having given up his time much to the cultivation of music. After he was thirty years of age, he removed to Bagdad; and then he turned his attention to philosophy, and afterwards to physic. He became, however, indefatigable in his application; and was continually occupied in observing, reading, and writing, until he obtained the highest reputation; and he was selected out of a hundred eminent physicians, who were then resident at Bagdad, to superintend the celebrated hospital of that city. The historians considered him as the Galen of the Arabians; and, from his long life and constant practice, during which he paid the most assiduous attention to the varieties of disease, he obtained the appellation of *the Experimenter*, or the experienced. He was said also to be profoundly skilled in all the sciences, especially in philosophy, astronomy, and music. He travelled much in pursuit of knowledge, and made frequent journeys into Persia, his native country, and was much consulted by several princes, particularly by Almanzor, the chief of Chorasán, with whom he frequently corresponded, and to whom he dedicated several of his writings. Abi Osbaia enumerated 226 treatises composed by Rhazes, among which the ten books addressed to his patron Almanzor are mentioned, and therefore are doubtless genuine, although Haly Abbas, who has given an account of him and his works, has not noticed them. This work Rhazes designed as a complete body of physic, and it may be deemed the great magazine of all the Arabian medicine: the ninth book, indeed, which treats of the cure of diseases, was in such general estimation for several centuries, that it was the text-book of the public schools, and was commented upon by the most learned professors. Nevertheless, like the rest of the Arabian writings, it contains very little more than the substance of the works of the Greeks, from whom the Arabians borrowed almost all their medical knowledge. They have, indeed, and Rhazes in particular, given the first distinct account of the *small-pox*, a pestilential malady which the Greeks have nowhere accurately described, and which is, therefore, generally inferred to have been unknown among that people. This is questionable; but, at all events, the first specific account of the small-pox is to be found in the works of Rhazes. He was the author, also, of the first treatise ever composed respecting the diseases of children. His book on the affections of the joints is interesting, and contains an account of some remarkable cures, effected chiefly by copious blood-letting. He describes the symptoms of hy-

drophobia very well; and also some diseases peculiar to eastern countries, as the ignis perficus, vena medinensis, &c. and he first noticed the disease called spina ventosa. Rhazes had the reputation of being a skilful alchemist; the art of chemistry, in fact, originated with the Arabians; and Rhazes is the first, as Dr. Freind has shown, who mentions the use of chemical preparations in medicine. He has a chapter on the qualifications of a physician; and a singular tract on quacks and impostors, in which he has pourtrayed that class of pretenders to the life; and his detail of their pretensions shows that they were at least as numerous, and ingenious in their contrivances of cheating, as in more recent times. Rhazes lived to the age of eighty, and lost his sight: he died in the year 932. His works that have come down to us, through the medium of translations in Latin, are, 1. A sort of commonplace book, entitled *Continens*, or *Libri Continentes*. 2. A much more perfect work, the *Libri Decem, ad Almanforem*, published at Venice, 1510. 3. Six books of Aphorisms, published under the title of *Liber de Secretis, qui Aphorismorum appellatur*, Bononiæ, 1489. 4. A tract on the small-pox and measles, entitled, *De Pestilentia*. This last was translated by Dr. Mead in 1747, and by Mr. Channing in 1766. As it is a subject so much in dispute, we shall give an extract from the very first chapter. "As to those physicians who affirm, that the most excellent Galen has made no mention of the small-pox, and therefore that he did not know this distemper; surely they have either never read his works at all, or only very cursorily; nay, most of them do not know, whether what he plainly says of it is to be understood of that disease. For Galen, in a certain treatise, says, this drug does good this and that way, and also against the *small-pox*. And in the beginning of the fourteenth book, of pulses, that the blood is putrefied in an extraordinary degree, and that the inflammation runs so high, that it burns the skin; so that the small-pox and pestilential carbuncle are bred in it, and quite consume it. And in the ninth treatise of the book of the Use of the Parts, he observes, that the superfluous parts of aliments, which are not turned into blood, and remain in the members, putrefy, and in time increasing do ferment; whence, at last, are generated the pestilential carbuncle, the small-pox, and confluent inflammations. Lastly, in the fourth part of his Commentary upon the Timæus of Plato, he says, that the ancients gave the name *πλεγμα* to every thing which produces redness, as the carbuncle and small-pox; and that these diseases are bred in those in whom bile abounds. But, as for those who allege, that he has proposed no remedy or cure, nor explained the nature of this distemper, they indeed say what is true: for he mentions no more than what we have cited. But God knows whether he might not have done it in some other books, which have not yet appeared in Arabic."

Avicenna's *Canon Medicinæ*, or General System of Medicine and Surgery, was for many ages celebrated through all the schools of physic. It was principally compiled from the writings of Galen and Rhazes. The latter had, in difficult labours, recommended the fillet to assist in the extraction of the foetus; and, for the same purpose, Avicenna recommends the forceps. He describes the composition of several cosmetics to polish the skin, and make the hair grow, or fall off. See the article AVICENNA, vol. ii.

Albucasis flourished about a hundred years after Avicenna: the date of his birth is not known, but he died in 1106. He is chiefly eminent as a surgeon; and, although much of what he has left on the subject of his art is copied from Rhazes, from Paulus Æginæta, and other preceding writers; he has many original observations; and by those who love to see the first dawnings of improvement in science, his works will be still turned over with pleasure. He insisted on the necessity of a surgeon's being skilled in anatomy, to enable him to operate with success; he also held it to be equally necessary that he should be acquainted with the materia medica, or

the properties of the medicines employed in curing diseases; and inveighs against those who undertake for gain the cure of diseases, of the nature and causes of which they are unacquainted. It appears from his writings, that he extracted polypi from the nostrils, performed the operation of bronchotomy, and used a preparation similar to the lapis infernalis, as a caustic. He enumerates a tremendous list of operations, sufficient to fill us with horror. The hot iron and cauteries were favourite remedies of the Arabians; and, in inveterate pains, they reposed, like the Egyptians and eastern Asiatics, great confidence in burning the part. He describes accurately the manner of tapping in ascites; mentions several kinds of instruments for drawing blood; and has left a more ample and correct delineation of surgical instruments than any of the ancients. He gives various obstetrical directions for extracting the foetus in cases of difficult labour. He mentions the bronchocele, or prominent tumour on the neck, which, he tells us, was most frequent among the female sex. We are also informed by this writer, that the delicacy of the Arabian women did not permit male surgeons to perform lithotomy on females; but, when necessary, it was executed by one of their own sex.

Of Avenzoar nearly all that is known has been communicated under his article. The date of his birth is uncertain; he is said to have lived to the great age of 135 years; but, as he had a son of the same name and profession, it is very probable that the age of both is included in this term. He (or his son) died at Morocco in 1166, or at Seville in 1162. Avenzoar prepared his own medicines, reduced luxated bones, and performed other surgical operations. The work by which he is principally known is a compendium of the practice of medicine; in which some diseases are described not found in other writers. It includes a number of cases, candidly, it should seem, related, as the author does not conceal those in which he was unsuccessful. See AVENZOAR, vol. ii.

Thus we see, that, in consequence of the general decay of learning in the western parts of the world, the Greek writers were entirely neglected, because nobody could read the language; and the Arabians, though principally copiers from them, enjoyed all the reputation that was due to the others. The Arabian physic was introduced into Europe very early, with the most extravagant applause: and not only this, but other branches of their learning, came into repute in the west; inasmuch that in the 11th century, the studies of natural philosophy and the liberal arts were called "the studies of the Saracens." This was owing partly to the crusades undertaken against them by the European princes; and partly to the settlement of the Moors in Spain, and the intercourse they and other Arabians had with the Italians. For, long before the time of the crusades, probably in the middle of the 7th century, there were Hebrew, Arabic, and Latin, professors of physic settled in Italy and Spain. The university of Cordova, which had been founded by Alhakem, became the most celebrated in the world, and maintained its repute for a long course of years. As early as the tenth century, Cordova could boast of the largest library in the west; a library of 250,000 books, and of which the catalogue is said to have filled forty-four volumes. In the twelfth century, there were no less than seventy public libraries in Spain: Cordova had produced 150 authors, Almeria 52, and Murcia 62. At Seville, at Toledo, and at Murcia, academies were also established, which continued to flourish during the whole period of the dominion of the Arabians.

In the tenth century, the rich and maritime city of Salerno, in the Neapolitan territory, arrested the attention of the predatory Musulmen. Frequently engaged either in war or in negotiation, they became mixed with the Christians, and gradually communicated their literary attainments; and, in the year 802, Charlemagne founded in Salerno a school, which in process of time became the most

most celebrated in the world. About the latter end of the 11th century, Constantine the African introduced into the Salernian school the Grecian authors, as well as the learning which he had obtained from a long residence in Babylon and Bagdad. In the twelfth century, however, this school arrived at its highest fame; and was much frequented by the crusaders in their passage to and from the Holy Land. Among these, Robert, the son of William the Conqueror, had the honour of having the well-known "Regimen Sanitatis Salerni" dedicated to him. In the year 1140, the emperor Frederic II. conferred particular privileges on the school of Salerno, and regulated the course of studies, and the probations which physicians and surgeons should undergo before they were permitted to practise. Many of the ordinances show great judgment. The Salernian school continued accordingly to flourish till the middle of the fourteenth century, when it appears to have begun to decline. "Fuisse Salerni," says Petrarch, "*medicinæ fontem fama est; sed nihil est, quod non senio exarefecat.*" Gariopontus, Nicolaus, Ægidius, Enos, and John of Milan, the author of the Regimen Sanitatis, are the chief writers whom this school boasts. This school was perhaps, the first that established the form of public examination and admission, and possessed the power of conferring medical licenses and degrees. It recognises most obviously the existence of apothecaries, and enforces the propriety of discriminating the three branches of the medical profession from each other. The physician was under the necessity of producing testimonials that he had been a medical student for seven full years; the surgeon that he had attended to anatomy for at least one; and the apothecary was prohibited from charging more than an established ratio for the medicaments he compounded or employed.

While the eastern nations assiduously cultivated the knowledge of the Greek writers, and while their caliphs and rulers encouraged science by a liberal patronage, a very different part was followed by the Christians. The clergy, actuated by avaricious motives, seized upon the province of the physician; and the most ignorant priests and monks ventured upon the practice of medicine, without any proper study or preparation. At length the evil became too crying to be any longer endured; and the first Lateran council, held in 1123, forbade the regular clergy to visit any longer the sick. The prohibition was repeated, in other terms, by the council of Rheims in 1131, and by the second general Lateran council in 1139; and those monks and canons who applied themselves to physic, "*ordinis sui propositum nullatenus attendentes, pro detestanda pecunia sanitatem pollicentur,*" were threatened with severe penalties; and all bishops, abbots, and priors, who connived at their misconduct, were ordered to be suspended from their ecclesiastical functions. "But the French priests and monks," says Cabanis, "bade defiance to these thundering anathemas; and it was not till three hundred years after, that common sense, and a regard to propriety and the public good, triumphed finally over their artifices. A special bull, procured by the cardinal d'Estouteville, in 1452, which permitted physicians to marry, effected their complete separation from the clergy; and, by this means alone, put a stop to a variety of shameful abuses.

To the honour of our country; however, be it mentioned, that these abuses do not appear to have prevailed to such an extent among us. The clergy did not indeed practise physic, but they were armed with great authority over those who did. In the days when *benefit of clergy* had a saving signification in courts of law, the ministers of religion were regarded with great reverence; and their powers over the practice of medicine are not yet quite extinct. The first control exercised over the practice of physic in England appears to have been ecclesiastical, though the end and purpose of the interference of the church on this occasion, as in most others in those times, as not so much the health of the body as the welfare

of the soul, *ecclesiastically understood*. One of the constitutions of Richard Wethershed, archbishop of Canterbury anno 1229, in the fourteenth year of the reign of Henry III. runs as follows: "Under pain of anathema, we forbid any physician to give advice for the health of the body which may prove perilous to the soul, which is much more precious than the body. But, when it happens that he is called to a sick man, let him first effectually persuade him to call for the physician of the soul; that, when the sick man has taken spiritual cure, he may, with better effect, proceed to the bodily medicines. Let not the transgressors of this constitution escape the punishment appointed by the council." The punishment here denounced against physicians so offending, was a prohibition from entrance into the church till they had made satisfaction, according to chap. xxii. of the council of Lateran, under Pope Innocent III. from whence this constitution is taken.

It was nearly two centuries after this, namely, in the reign of Henry V. anno 9. that the first statute was enacted relative to practitioners in physic. The preamble to this act, after reciting the mischiefs arising from illiterate practitioners, states, "that if no man practised therein but all only conynge men, and approved, sufficiently ylearned in art, filosofye, and fysyk, as it is kept in other londes and roiaumes, ther shuld many man that dyeth for default of help lyve, and no man perish of unconnyng." The petition then goes on to pray, that no person be allowed to practise physic, "but he have long time yused the scoles of fysyk within some universtee, and be graduated in the same."

The next act restraining the practice of physic in London and its immediate vicinity, to persons of approved competency, was passed in the third year of the reign of Henry VIII. seven years prior to the establishment, by charter, of the present College of Physicians. Its title was, "An Act for the appointing of Physicians and Surgeons." It was enacted that no person within the city of London, nor within seven miles of the same, take upon him to exercise and occupy as a physician or surgeon, except he be first examined, approved, and admitted, by the bishop of London, or by the dean of Paul's, for the time being, calling to him or them four doctors of physic, and, for surgery, other expert persons in that faculty. When the Charter of the College of Physicians was granted by the king, it was on the petition of a priest, the cardinal Wolsey, chancellor of England, in conjunction with John Chambre, Thomas Linacre, Ferdinand de Victoria, foreign graduates, the king's physicians, and Nicholas Halliwell, John Francis, and Robert Yaxley, physicians. And the archbishop of Canterbury can, and does to this day, by his diploma, constitute a physician.

To return from this digression.—After Salernum, the universities of Montpellier, Paris, Boulogne, Pavia, Padua, and Ferrara, became the most distinguished seminaries for medical education; but the servile attachment to ancient dogmas which obtained in their schools materially retarded their progress. In 1271, the College of Surgeons at Paris was established by Pitard, a man who, according to Quesnay, was born for the advancement of his art; and surgery was henceforth cultivated with much success in France, as a distinct branch of the profession. Several writers on physic appeared in England; among whom Gilbert has the merit of having furnished the best description of the leprosy of the middle ages; but he trod in the footsteps of the Arabians, and gave into the scholastic style. The same remark applies to his successors, John of St. Giles, Richard of Windermere, Nicolas of Parneham, John of Gaddesden, &c. It was in Italy that medical science was revived in the truest spirit. In the year 1315, Mondini de Luzzi, professor at Bologna, astonished the whole world, to use Vicq d'Azyr's expression, by the public dissection of two human bodies. His example was followed in other universities; but the utility of the practice was in a great degree frustrated by the

the predilection for ancient opinions, which made the anatomists of the age less anxious to discover new facts, than to reconcile the appearances which they observed with the dogmas of Galen and Avicenna. An absurd bull of pope Boniface VIII. forbidding the maceration and preparation of skeletons, also concurred to impede the progress of anatomy; (Blumenbach, Hist. Med. Litterar. p. 99.) but from this time forward, the Italian professors maintained a high repute for anatomical science, and have ranked among the most zealous contributors to our knowledge of the human frame.

Though the crusades had conferred no direct benefits on science, they had given a new impulse to the human mind, by the spirit of commerce which they excited. They were also the occasion of the rapid spreading of leprosy and some other diseases in the West, and of the consequent increase of institutions for the relief of the sick, after the example of the Oriental nations. Several orders of knighthood, as the Templars, the knights of St. John, of St. Lazarus, the Hospitalarii Sancti Spiritus, &c. were founded with this charitable view; the members devoting themselves to the cure of such pilgrims as were afflicted with disease.

In the fifteenth century several new diseases appear to have invaded mankind, or, at least, to have attacked them with a degree of violence that was before unknown. The whooping-cough was epidemic in France in the year 1474: and, according to Mezeray, it attacked all descriptions of persons, even the oldest men. The sweating sickness, which broke out first in the same country, was brought to England by the soldiers of the duke of Richmond (afterwards king Henry VII.) upon his landing at Milford-haven in 1485; and spread itself at London from the 21st of September to the end of October. It returned there five times, and always in summer; first in 1495, then in 1506, afterwards in 1517, when it was so violent that it killed many in the space of three hours, so that numbers of the nobility died, and of the commonalty in several towns often the one-half perished. It appeared the fourth time in 1528, and then proved mortal in six hours; many of the courtiers died of it, and Henry VIII. himself was in danger. In 1529, and only then, it infested the Netherlands and Germany, in which last country it did much mischief. The last return of it was in 1551; and in Westminster it carried off 120 in a day.

At this time also a new disease overran the world, and threatened greater destruction than almost all the old ones put together, both by the violence of its symptoms, and its baffling the most powerful remedies at that time known. This was the venereal disease, which is supposed to have been imported from the West Indies by the companions of Christopher Columbus. Its first remarkable appearance was at the siege of Naples in 1494, from whence it was soon after propagated through Europe, Asia, and Africa. The symptoms with which it made the attack at that time were exceedingly violent, much more so than they are at present; and consequently were utterly unconquerable by the Galenists. At this period, as sea-voyages of considerable duration were more frequent, the scurvy became a more common distemper, and was of course more accurately described. But probably, from supposed analogy to the contagions which at that time were new in Europe, very erroneous ideas were entertained with regard to its being of an infectious nature: and it is not impossible, that, from its being attended also with ulcers, it was on some occasions confounded with syphilitic complaints.

Dreadful as the infliction of these maladies must have been on the suffering world, we have reason to believe that they were not without their use in leading to the improvement of medicine. The physicians of the time, finding the rules of their favourite authors quite inapplicable to the cure of distempers so malignant, naturally began to observe and judge for themselves. Manardi and Leonicensio (see their respective articles) laboured to

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expose the errors of the Arabs, and bring back their followers to the study of Nature and Hippocrates. In this laudable undertaking they were seconded by the German, French, and English, professors; and particularly by the labours of Dodoneus, Schenklius, Forestus, and Platerus.

In the early part of the sixteenth century, Brissot of Poitou revived a subject which had before engaged physicians in violent disputes. According to the Hippocratic mode of treating inflammation, which was to take the blood from the inflamed part as closely as possible, the Greek physicians were wont, in pleurisy, to bleed in the arm of the same side as was affected with pain. Avicenna had objected to this, and recommended venesection in the opposite arm. This produced a great deal of altercation; and in the end a decree of the university of Palermo issued forth which forbade any one to bleed except in the contrary arm; and the professors endeavoured to persuade the emperor Charles V. to second it by an edict. Brissot met with almost as much opposition in reviving the old method as the Salernitans had done in introducing the new one: but at length the dispute was settled in favour of Brissot by the great anatomical discoverers of that century.

The science of anatomy gradually became improved in the hands of Zerbi, Winter, Laguna, and Sylvius; which last taught anatomy at Paris in 1532. But it was reserved for the great and comprehensive mind of Vesalius to throw off the shackles which had so long fettered the progress of anatomy. So far from adopting as infallible dogmas the anatomical relations of Galen, he attached himself particularly to disclosing the errors of that author. He first advised anatomists to inject coloured fluids into the vessels of the body, in order to facilitate the labour of minutely tracing them. Whilst he was a young man at college, he pursued anatomical inquiries with great ardour and assiduity, and published some of his discoveries before he was twenty-five years of age, and seven books on the anatomy of the human body before he was twenty-nine, A. D. 1542. These books contain great discoveries, and, in many circumstances, correct the ancients. But, although they have entitled their author to the gratitude of posterity, they procured to him scarcely any thing but animosity from his contemporaries. The authority of Galen was still held in high veneration; and, when Vesalius exposed his errors, the hatred of all seemed turned against him. People could not bear to be set right by so young a man; and even Sylvius denounced perpetual enmity against him. But, confident in the certainty with which dissection furnished him, he acquired a complete ascendancy over his adversaries: so much so, indeed, that his lectures were sometimes attended by 500 pupils. He pressed Sylvius, his master, so hard, in these controversies, that the latter, rather than admit his favourite Galen was wrong, asserted that "*the structure of the human body had become altered in some particulars since the time of Galen, and that man's nature had degenerated!*" Thus, for instance, the number of the pectoral bones occasioned a dispute, which was carried on with great acrimony between them. Galen had adopted seven in the human skeleton; but Vesalius proved that there were only three, and that his opponent had again been misled by the skeleton of a monkey. But Sylvius objected to this, "that men had been larger and taller in the time of Galen, and had seven pectoral bones, but that, in this dwarfish century, three only could be found." Vesalius asserted, that the bones of the hand are not totally destitute of medullary substance, as Galen had maintained; and Sylvius again endeavoured to refute his assertion, by the absurd argument, "that the bones in former times had been firmer and harder, and consequently required no such substance." Vesalius rejected the large curvature which Galen ascribed to the os humeri, and the os ilium; while Sylvius defended Galen, by asserting, that the bones had become more

straight by the modern mode of dress. He vindicated, in a similar manner, Galen's neglect in describing the cartilages of the extremities of the bones: "In former times," said he, "the bones were more solid, and consequently required no cartilages!"

These prejudices had not passed away from among the French physicians even in the following century; for we find Moliere, in his *Medecin malgré lui* (Mock Doctor), alluding to the absurdity we have just mentioned, of some parts of the viscera having changed their places.

"*Doctor.* Now these vapours of which I am speaking having passed from the left side, which is the seat of the liver, to the right, where the heart is situated, then the lungs, which we call in Latin *armyan*, communicating with the brain, which in Greek we call *nafmus*, by means of the vena cava, which is *cubile* in Hebrew, meets in its way with these vapours, which fill the ventricles of the omoplate; and, since these vapours possess a certain malignity caused by the acridity of the humours engendered in the concavity of the diaphragm, it therefore happens that these vapours—in short, this is precisely the reason why your daughter is dumb.

"*Father.* Nothing in the world can be clearer than this reasoning. Only one difficulty occurs to me; namely the seat of the liver and of the heart. I always thought the heart to have been on the left side, and the liver on the right.

"*Doctor.* Yes; it was so formerly; but we have altered all that, and medicine is now administered in a manner totally new." Mock Doctor, act ii.

Vesalius had great advantages over his predecessors in being able to perpetuate his labours by means of the beautiful representations which Titian and others painted for him. In 1561, Fallopius, in Italy, published his *Observationes Anatomicae*; he was an indefatigable anatomist, and made great discoveries. About the same time, Eustachius made himself conspicuously eminent by promoting anatomical knowledge. He seemed calculated for subtle investigations; he drew many figures of the human body, and engraved his own plates, the accuracy of which cannot fail of exciting surprise in an anatomist of the present day. When the labours of these eminent men had, as it were, smoothed the path, anatomy was taught with a moderate degree of correctness and minuteness in the different schools of Europe.

But the most important discovery of this science was that of the circulation of the blood. Berengar, who had paid great attention to the structure of the heart, conjectured the right use of the semilunar valves. In 1547, Cannani and Amatus observed the valve at the termination of the vena azygos; but they did not turn the discovery to account; and it was reserved for Fabricius of Aquapendente to prove the presence of valves throughout the whole course of the veins. Five years afterwards, the circulation of the blood through the lungs was imperfectly described by Servetus, who had availed himself of the researches of Berengar and Vesalius. In the year 1571, Cæsalpinus had the merit of stating it more clearly, and even of suggesting the first hint of the greater circulation; but the full honour of the latter discovery must be ascribed to our countryman, Harvey.

This improvement in anatomical knowledge was necessarily accompanied by a corresponding one in surgery. The Italian surgeon, Maggi, corrected the absurd notions that his predecessors had inculcated, viz. that gun-shot wounds were connected with combustion, and that gunpowder poisoned the wound. He showed that, since the balls did not set the wadding on fire when they came first from the barrel of the gun, they could not be hot; nor could gunpowder poison a wound, since it was composed of none but harmless materials. Maggi likewise left some useful directions concerning amputation. Ambroise Paré introduced into France the treatment of gun-shot wounds established by Maggi. The same practice was likewise adopted by John Baptist. Carcano Leone,

professor at Pavia. Paré was, however, unquestionably the most celebrated surgeon of the 16th century. Besides the improved treatment of gun-shot wounds, which he had the merit of introducing, together with many other peculiar methods in operative surgery, he has rendered essential service to different branches of that science. He treated, for instance, the hydrocele with a seton; as the dangerous consequences of incision were in that age more frequently observed than they are at present. He did not apply the actual cautery to wounded blood-vessels, according to the old practice, but secured them by the ligature. The fracture of the collum ossis femoris, formerly considered as a luxation of that bone, was first ascertained by him with accuracy; he also reprobated the frequent dressing of ulcers, and the application of the trepan to the futures of the cranium and the temporal bones. He made very judicious remarks on concussions of the brain, of which Henry II. died, and on suppurations of the liver arising from injuries of the head. Wounds of the throat, in which one of the jugular veins, and even the trachea, was cut through, he did not consider as mortal. He successfully treated an injury of the nervus medianus from venesection, and thereby acquired the confidence of Charles IX. who had been subject to that dangerous accident. A person who, from losing a great part of his tongue, had been speechless for a considerable time, accidentally recovered the power of speech, by thrusting a table-spoon into his mouth. Paré ingeniously imitated this method, by contriving an appropriate instrument.

Amatus, or, according to some, his master Aldaretti, had invented the use of bougies; and those instruments now came into very general use, both simple and causticated.

The doctrine of lithotomy was considerably improved in this century, by the invention of two different methods of operating, namely, the *great* and the *high operation*. Germain Colot had undertaken a successful operation for the stone, in the fifteenth century, and probably by the high operation; but it does not appear that learned surgeons had imitated this method, till an obscure practitioner at Cremona, John de Romani, in 1525, began to adopt what is commonly called the high operation: he taught it to Mariano Santo de Berletta, a surgeon at Naples, who described the particulars of it in a separate treatise, published at Venice in 1543, wherein he professes to have been a pupil of Romani. It is probable that previous to this time no other method of operating was practised than that known under the name of the *smaller apparatus*, which can be employed only on children under fourteen years of age. In some rare instances which are related by Benivieni and Christ. de Vega, particularly in women, the stone had been found in the urethra itself, in which cases it could be more easily extracted. But, since that period, the passage was cleared by the application of the gorget, by means of which the forceps could be introduced into the bladder. Mariano Santo made use of the following apparatus: he first employed a curved sound, which he introduced into the urethra so as to direct the point to the left side; he expressly cautioned the operator against the incision into the perinæum, and is therefore unjustly censured for having attempted the incision in the middle. His sound was excavated, and he performed the incision in the direction of the groove; then introduced the sound, and along with it the conductors, and afterwards the gorget, which, according to its original construction, terminated in a blunt point; and lastly, he extracted the stone with the forceps, and removed the remaining particles of it, as well as the gravel or sand, by means of the lithotomical spoon. By the application of the blunt dilator, the parts were necessarily lacerated, and the wound occasioned by this laceration could not be healed without great difficulty. Hence Le Dran endeavoured to improve upon this method, especially by making an incision through the prostate

tate gland and the bladder with his guarded knife (*couteau en ronduche*); and the immortal Schmucker of Berlin was uncommonly successful in using the great apparatus for lithotomy in that improved state.

The discovery of the *high operation* was the work of necessity and accident. Peter Franco, of Turriers in Provence, surgeon at Berne, Laufanne, and Orange, was requested in the year 1560 to perform this operation for lithotomy, at Laufanne, on a child two years of age. He had already begun to operate with the small apparatus, when he found that the stone was of the size of a hen's egg, and consequently too large to be removed in that manner. The child's parents insisted that the operation should nevertheless be finished; and, as the bladder very much projected above the os pubis, he determined upon making the incision above these bones. Although he eventually succeeded in this bold attempt, yet he prudently dissuades his brethren from imitating that practice; and indeed the danger to be apprehended from the effusion of the urine into the abdomen is so great, that even the improvements made by Douglas, on the high apparatus of Franco, have not much diminished it. In order to remove the stone from female patients, Franco rejects both the large and smaller apparatus, while he proposes merely the dilatation of the urethra, by means of an instrument invented by himself; after which he extracts the stone with the forceps, without dissecting the parts. He likewise invented a gorgeret, and a forceps, the arms of which expand in the bladder; but the use of these instruments has been superseded by others that are more convenient.

A very painful but curious operation excited great attention during this century, although it had been previously performed. The reader will perhaps smile at an attempt to repair and restore that prominent part of the human face, the nose, when mutilated by accident. Barri, an Italian author, in his "*Italia illustrata*," 1600, considers Vincent Vianeo as the inventor of this singular practice. However that may be, two Sicilian surgeons of the name of Branca, father and son, had, so early as the latter end of the fifteenth century, acquired celebrity by the successful renovation of noses; an art which became hereditary in the family of the Bojani. But Caspar Tagliacozzi, professor at Bologna, raised this art to such high perfection, as to render it one of the principal branches of surgery: he became so celebrated by his operations, that his contemporaries erected a public monument at Bologna, where he is represented with a nose in his hand. This operation is described in an interesting work, intitled, "*Tagliacot. de Curtor Chirurg.*" fol. Venet. 1597; in which he compares it to the ingrafting of trees, expatiates on the dignity and ornament of the nose, and endeavours to prove that there is not the least danger in cutting out a piece from the biceps muscle of the arm. With respect to the diet to be observed during the operation, he gives ample and rigid instructions, while he maintains that the inoculated nose is possessed of a more acute smell, and that it generally grows much larger and stronger than the organ which had been accidentally lost. We may suppose that this operation became less successful in the hands of other surgeons, and so fell into disuse and contempt, as we find it ridiculed by Butler in the 17th century:

So learned Taliacotius from
The brawny part of porter's bum
Cut supplemental noses, which
Would last as long as parent-breech;
And, when the date of that was out,
Off dropt the sympathetic snout. *Hudibras*, Canto i.

It has, however, been revived in the present day; and has been practised with great success by Mr. Carpué, Mr. Linn, and others.

We might here mention the names of other practitioners who improved and illustrated the useful art of surgery: as

John de Vigo, Jacob Berenger de Carpi, and Mariano Santo de Berletta; the latter of whom abolished the actual cautery in hæmorrhages, and urged the superiority of a proper ligature. The anatomist Fallopius, likewise cultivated surgery with success, as did most of the anatomists of his age; and among them we might enumerate many who have contributed important improvements, would our limits permit.

The obstetric art, that important branch of surgery, began to emerge from its barbarity during the sixteenth century, and to excite the attention of surgeons more than it had hitherto done. There appeared several introductions to midwifery, the greater number of which, however, contained much useless and abstruse reasoning on the generation of man, and the vitality of the embryo in certain months, while they were extremely deficient in well founded and practical rules for facilitating delivery. See the article PARTURITION in the preceding volume.

The military surgeons of ancient times are very little mentioned in history. Perhaps they were not in very great estimation; as seems probable from the persons with whom they are classed in the military code made at Mans by Henry V. where, under the head of the persons subject to the constable and marshal, the *medici* are introduced in the following company: "Whether soldiers, shoemakers, tailors, barbers, physicians, or *washer-women*." See Upton de Re Militari.

The low state of military surgery in France, even so late as the time of Francis I. (contemporary with our Henry VIII.) may be gathered from the following extract from an old and scarce book called *Treasure of Ancient and Modern Times*: "In the year of our Lord 1536, the victorious king Fraunces sent a great army into Piedmont to vitale Thurin, &c. I was at that time but a young chirurgion, and but little experienced in the art, because I never had as yet seen the curation of wounds made by gun-shot. True it is, I had read John de Vigo, his firste booke of wounds in generall, chap. 8. where he saith, that those wounds made by fiery engines do participate of venosity, because of the powder; and for their curation he commands to cauterize them with the oile of elders, mixed with a little treacle. Yet nevertheless, because I would not be deceived, before I made use of the said boyling oile, knowing that it brought extreme paine to the patient, I observed the method of other chirurgions in the first dressinge of such wounds, which was by the application and infusion of the aforesaid oile, as hot as possibly they could suffer it, with tents and setons; wherefore I became emboldened to do as they did. But in the end my oile failed me, so that I was constrained to use, instead thereof, a digestive made of the yolk of an egge, oil of roses, and terebinth. The night following I could hardly sleep at mine ease, fearing lest that, for want of cauterizing, I should find my patients, on whom I had not used the aforesaid oile, dead and empoysoned; which made me rise early in the morning to visit them, where, beyond my expectation, I found them on whom I had used the digestive medicine, to feele but little paine, and their wounds without inflammation or tumour, having rested well all that night; the rest, on whom the aforesaid oile was applied, I found them inclining to feavers, with greate paine, tumour, and inflammation, about their wounds; then I resolved with my selfe, never to burne so cruelly the wounded patients by gun-shot any more. A famous chirurgion at Turin, proposed a balm for gun-shot wounds as follows: Two young whelps, one pound of earth-worms, two pounds of the oil of lilies, six ounces of the terebinth of Venice, and one ounce of aqua vitæ. In my presence he boiled the whelps alive in the said oile, untill the flesh deserted from the bones: afterwards he took the worms, having before killed and purified them in white wine, to purge themselves of the earth which they have always in their bodies; being so prepared, he boiled them also in the said

said oil, till they became dry; this he strained thorow a napkin without any great expresseion; that doone, hee added thereto the terebinth; and lastly the aqua vitæ; and called God to witnesse that this was his balme, which he used in all wounds made by gun-shoot, and in others which required suppuration; withall praying me not to divulge his secret."

How terrible must have been the state of the military hospitals, and what numbers of men must have fallen a sacrifice to ignorance, who under proper management might have been recovered to the service of their country! But, bad as the surgeons were, some were nevertheless necessary in our armies; and, although the general mode of raising and paying them is not handed down, certainly some regular form of doing it must have existed.

In the wardrobe-account of the pay of the army raised against the Scots, by Henry II. in the 15th year of his reign, many of the Welsh corps have an officer styled *Medicus*; but whether by that term a physician or surgeon is meant, seems doubtful, as the word *medicus* is sometimes used for both a surgeon and an apothecary. None of these physicians or surgeons are charged to the English levies. And to the Welch they seem to bear no regular proportion to the number of private men; a corps of 1907 men having only one, and another of 968 having two; the wages of all, except the two last-named, was 6d. per diem each; those which were raised on the king's land in Cardiganshire had only 4d. each per diem.

In the list of the troops that attended Edward III. to the siege of Calais, only one surgeon is mentioned, who seems to have been part of the retinue of the prince of Wales; and, in the military establishment of the 18th of the said reign, as given in the accounts of Walter Wentwayt, treasurer of the household, there is one surgeon for the king's household-troops; four doctors and one surgeon for the army of North Wales; two doctors and one surgeon for that of South Wales; a supply by no means competent to the number of men to which they were appointed. Supposing the inferior surgeons to have been styled barbers, like the field-shaver of the Germans, it seems reasonable to expect they would somewhere appear on the muster-roll.

Henry V. A. D. 1415, engaged Master Nicholas Colnet, a physician, to serve him for one whole year, in the voyage then to be made either to the duchy of Guyenne or France. Colnet was to bring with him three archers. If the expedition went to Guyenne, he was to have for his own wages forty marks, and twenty marks for each of his archers, for the whole year. If to France, for his own wages 1s. and to each of his archers 6d. a day, with regards. In the same year the king engaged Thomas de Morestede, a surgeon, who contracted to bring with him twelve other surgeons and three archers. Morestede was to be paid as a man at arms, 12d. by the day; and his twelve assistants and three archers, each 6d. with the usual regard. The same conditions were covenanted, in case the campaign lay in Guyenne, that were made with Colnet. Upon a petition, the king granted Morestede one waggon and two sumpter-horses, for the carriage of the baggage and necessities for himself and the twelve other surgeons. He likewise petitioned for money to buy necessities for his office, but it was not granted. The next year the king employed Morestede, joining with him William Bredeyardyn, with the title of his surgeons, in a commission to impress as many surgeons as they thought necessary for the expedition, with a sufficient number of artificers for making their instruments, to be taken wherever they could be found.

Among the different persons who indented in the 14th of Edward IV. to serve that king in Normandy and France, for one year, are the following physicians and surgeons: Master Jacobus Fryle, king's physician, 2s. per diem, with two servants at 6d. per diem; Master William Hobbis, physician and surgeon of the king's body, 18d.

per diem; seven surgeons at 12d. and five other surgeons every one at 6d. per diem, for their attendance in the said service beyond sea. It is remarkable, that here are just twelve surgeons, the same number that appears to have been employed on the expedition under Henry V.

In the expedition to St. Quintin's in the reign of Philip and Mary, 1557, an army consisting of five hundred heavy armed horse, five hundred light horse, four thousand foot, and two hundred pioneers, with officers and a train of artillery proportionable, there were fifty-seven surgeons, two of them belonging to the suite of the general, one to the lieutenant-general, one to the high marischal, one to the general of the horseman, one to the general of the infantry, and one to the master of the ordnance; all these at the daily pay of 1s. each. The remainder belonged to the corps of horse, light horse, and infantry, in the proportion of one surgeon to an hundred men; the daily pay of a surgeon of heavy horse was 2s. of light horse 1s. 6d. and of infantry 1s. No surgeon is charged for either the ordnance or pioneers.

Besides the king's pay, it seems as if the surgeons of former times, as well as those of late, received a weekly stoppage from the private men. This may be gathered from the following description of the duties of a military surgeon, written in the reign of Queen Elizabeth. "Surgeons shoulde be men of sobrietye, of good conscience, and skillfull in that science, able to heal all soares and woundes, specially to take oute a pellett oute of the same. All capitaines must have suche surgeons, and ought to see them to have all their oyles, balmes, salves, and instruments, and necessary stuffe to them belonginge, allowinge and sparinge carriage for the same. That every souldier, at the paye daye, doe give unto the surgeon 2d. as in tymes past hath bene accustomed, to the augmentation of his wages; in consideration whereof, the surgeon oughte readilie to employ his industrie upon the soare and wounded souldiers, not intermedlinge with any other cures to them noyosome. Regarde that the surgeon bee truelye paid his wages, and all money due to hym for cures, that bye the same hee maye bee able to provide all suche stuffe as to him is needfull. Such surgeons muste weare their baldricke, whereby they may be knownen in the tyme of slaughter: it is their charter in the field." From this passage it should seem that surgeons formerly wore a distinguishing belt over their shoulders, like that now used by the itinerant farriers, vulgarly styled *sow-gelders*, in order to protect their persons whilst administering to the wounded in the field of battle; a precaution now rendered unnecessary by the apparatus of bandages, &c. carried by surgeons attending a party where service is expected, or in a field of battle.

In an estimate made, anno 1620, for an army of twenty-five thousand foot, five thousand horse, and twenty pieces of artillery, proposed by king James to be sent to the Palatinate, a number of surgeons is appointed, but no allowance or provision whatever appears in the estimate for medicines or an hospital, although there is a very minute detail of almost every other necessary store; and this seems the more extraordinary, as many of the most experienced officers of that time were called in to assist in forming the estimate. The medicinal list appointed for this expedition were: "In the general's traine, two physicians, at 6s. 8d. per diem each; two apothecaries, at 3s. 4d. and two surgeons, each at 6s. 8d. Every regiment of foot consisted of twelve companies of 150 men each, and had one chief surgeon, at 4s. per diem, and another surgeon to each company at 1s. per diem. Among the general officers of horse is one chief surgeon at 4s. a-day, probably to superintend the surgeons of troops. To every troop, which was to consist of a hundred men, one surgeon was allotted; his daily pay, 2s. 6d. To the ordnance, pioneers, &c. there was allowed one barber-surgeon, at 2s. per diem; and two under barber-surgeons, at 6d. a-day each."

One reason may be assigned for our ancient armies being

being able to do with so small a number of surgeons; which is, that, immediately after a battle, such of the meaner sort of soldiers, whose wounds seemed to require a considerable time for cure, were by the general dismissed, with a small pecuniary provision to carry them home: this, according to Barnes's History of Edward III. was done immediately after the battle of Poitiers. Perhaps likewise the inferior surgeons, styled *barbers*, were taken from the ranks, and therefore paid and mustered as private men.

The practice of medicine did not keep pace in improvement with anatomy and surgery. In the early part of the 16th century the most conspicuous name we meet with is that of *Paracelsus*. This bold and conceited chemist, who had been greatly neglected in his education, endeavoured to combine the principles of alchemy, medicine, and astrology. He travelled much in search of remedies, which he did not disdain to accept from old women, gipsies, and conjurers. He acquired very great reputation; and on his return to Germany he was appointed professor of surgery to the university of Basle. The pathological doctrines of Paracelsus are very imperfectly understood. It appears, however, that he admitted three component parts of the animal body, salt, mercury, and sulphur. We must not suppose that he carried his notions so far as to conceive that these chemical substances were really existent in our frame. On the contrary, he appears to have merely used the above-mentioned terms to illustrate his meaning by analogy. Thus, *mercury* is supposed to mean the principle of fluidity, *sulphur* that of inflammability, and *salt* solidity. The vital principle of Paracelsus he denominated *Archæus*; it was seated in the stomach, and was the principal agent in digestion; it separated the noxious, and prepared for assimilation the nutritious, parts of our aliment, with a great deal of intelligence, and was the principal agent in the recovery and preservation of health. Paracelsus likewise mentioned a humour as producing disease, though he had abused with so much virulence the humoral pathology of Galen. This humour he called *Tartarus*; it produced rigidity of the solids, viscosity of the fluids, &c. but it should be remarked, that this author did not, like Galen, impute disease to the presence of humour, but humour to disease; for the proximate cause of this *Tartarus* he contended was the irregular action of the *Archæus*, or presiding spirit. He moreover mentioned five remote causes of disease, viz. *ens astrale, ens veneni, ens naturale, ens spirituale*, and *ens deale*. Divested of chemical jargon and obscurity, the theory of Paracelsus seems to be this. He remarked, with many others before him, the three principles of the animal frame; solidity, fluidity, and contractility or irritability; and he endeavoured to trace their origin in substances which possessed properties bearing to them a remote analogy. In the second place, in tracing the phenomena of disease, he referred to the defective or inordinate energy of the vital power the assimilation of noxious particles of food into the blood: hence a humour which, circulating in all parts, produced the varied phenomena of disease. Paracelsus in his practice used the chemical remedies with some success: he has the merit of first introducing mercury as a cure for the venereal disease, which had before his time been treated with inert quintessences, diet-drinks, guaiacum, &c. He was likewise the first who prescribed opium freely; and he was no friend to that absurd practice, which had come into vogue with the Arabian physicians, of compounding 50 or 60 simples together, under the mistaken notion that all the substances would retain and exert their separate virtues, or that among so great a number something would be found applicable to the case.

Modern pharmacy may be said to commence about the middle of the fifteenth century, at which time it appears to have been in a most deplorable state of empirical barbarity. Though it is probable that, among the earlier practitioners of medicine, remedies were employed in

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their most simple forms, the art of compounding a number of simples together into one medicine had, by the time of which we are now speaking, arrived at a pitch of extravagance which has never been exceeded. What carried this ostentation of composition to the highest excess, was the project of framing *antidotes*, which being previously administered, might defend against any poison whatever that should afterwards be taken into the body. To this scheme is owing the multitudinous composition of the celebrated Mithridate and the Theriaca; for such medicines must of course recommend themselves by the number and variety of their ingredients, as they were to contain a proper antidote for every possible species of poison, and more especially as these compositions were to be farther wrought up into little less than universal remedies for all diseases to which the human body is subject.

The first of these antidotes was said to be composed from the result of experiments made separately with all kinds of simple antidotes by the famous king whose name it bears; but, as no records are left us of any of those particular experiments, we may reasonably consider this tale as fabulous. As it is not likely that this medicine or the Theriaca will ever again appear in our Pharmacopœias, we shall, for the amusement of our readers, describe the composition of each, as given in the London Pharmacopœia published in 1746.

The Mithridate is thus composed. "Take of cinnamon 14 drams, of myrrh 11 drams; agaric, spikenard, ginger, saffron, seeds of treacle mustard, or of mithridate mustard, frankincense, Chio turpentine, of each 10 drams; camel's hay, costus, or in its stead zedoary, Indian leaf, or in its stead mace, French lavender, long pepper, seeds of hartwort, juice of the rape of cistus, strained storax, opoponax, strained galbanum, balsam of Gilead; or in its stead expressed oil of nutmegs, Russian castor, of each an ounce; poley-mountain, water-germander, the fruit of the balsam-tree, or in its stead cubebs, white pepper, seeds of the carrot of Crete, bdellium strained, of each seven drams; Celtic nard, gentian-root, leaves of dittany of Crete, red roses, seeds of Macedonian parsley, the lesser cardamom-seeds freed from their husks, sweet fennel-seeds, gum Arabic, opium strained, of each five drams; root of the sweet flag, root of wild valerian, anise-feed, sagapenum strained, of each three drams; spignel, St. John's wort, juice of acacia, or in its stead Japan earth, the bellies of scinks, of each two drams and a half; clarified honey, thrice the weight of all the rest. Dissolve the opium first in a little wine, and then mix it with the honey made hot; in the mean time melt together in another vessel the galbanum, storax, turpentine, and the balsam of Gilead, or the expressed oil of nutmeg, continually stirring them round, that they may not burn; and, as soon as these are melted, add to them the hot honey, first by spoonfuls, and afterwards more freely: lastly, when this mixture is nearly cold, add by degrees the rest of the species reduced to powder."

The preparation of the *Theriaca Andromachi*, or Venice treacle, is thus directed. "Take of the troches of squills, half a pound; long pepper, opium strained, dried vipers, of each three ounces; cinnamon, balm of Gilead, or in its stead expressed oil of nutmeg, of each two ounces; agaric, the root of Florentine orris, water-germander, red roses, seeds of nawew, extract of liquorice, of each an ounce and a half; spikenard, saffron, ammoniac, myrrh, costus, or in its stead zedoary, camel's hay, of each an ounce; the root of cinque-foil, rhubarb, ginger, Indian leaf, or in its stead mace, leaves of dittany of Crete, of horehound, and of calamint, French lavender, black pepper, seeds of Macedonian parsley, olibanum, Chio turpentine, root of wild valerian, of each six drams; gentian-root, Celtic nard, spignel, leaves of poley-mountain, of St. John's wort, of ground-pine, tops of creeping-germander with the seed, the fruit of the balsam-tree, or in its stead cubebs, anise-feed, sweet fennel-feed, the lesser cardamom-seeds freed from their

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husks,

huffs, feed of bishop's-weed, of hartwort, of treacle-mustard or mithridate-mustard, juice of the rape of cistus, acacia, or in its stead Japan earth, gum Arabic, storax strained, sagapenum strained, Lemnian earth, or in its stead bole-armenic or French bole, green vitriol calcined, of each half an ounce; root of creeping birthwort, or in its stead of the long birthwort, tops of the lesser centaury, seeds of the carrot of Crete, opoponax, galbanum strained, Russia castor, Jews pitch, or in its stead white amber prepared, root of the sweet flag, of each two drams; of clarified honey thrice the weight of all the rest. The ingredients are to be mixed in the same manner as in the Mithridate." The Theriaca may be considered as a modification of the Mithridate by Andromachus, though we are not informed what were his reasons for the variations, except that by the addition of the viper's flesh the medicine was rendered more useful against the bite of that animal. The Theriaca was in so great repute before the decline of the Roman empire, that even the wife Marcus Aurelius was induced to make a daily use of it, to the great prejudice of his health; for we are told by Galen, that his head was so much affected, that he dosed in the midst of business; and, when on this account he omitted the opium in the composition, he could not sleep at all.

When the alchemists had extended the bounds of their art from the mere drudgery of manufacturing gold and silver to the more noble and philosophic employment of composing an universal elixir that should secure its possessor from disease, and prolong his life to an indefinite period, pharmacy derived from their labours considerable and solid advantages. The experiments instituted by these visionaries with the metals, led to the accidental discovery of some of the most efficacious remedies which we at present employ, especially the preparations of antimony and mercury, and most of what are called the neutral or secondary salts. By calling in the aid of fire, they enabled us to produce in bodies changes which, without the assistance of this powerful agent, we should have been unable to effect. Now, every thing was submitted to digestion, calcination, fermentation, distillation, and sublimation; but, as generally happens in cases of innovation or reform, these new methods of obtaining active remedies were carried to an absurd and ridiculous extent. Finding that the healing powers of many substances were eliminated or increased by the application of heat, they seemed to imagine that the simple medicine could in no case possess any medical virtue till it had been placed upon the fire or kept for some hours in a furnace. Hence the immense number of distilled waters and spirits, essential and empyreumatic oils, with which the old pharmacopœias are crowded, and which seem in many cases to possess no other powers than what they derive from the water or the spirit that forms the bulk of the preparation. Not only plants and minerals, but animals and animal matters of all kinds, were distilled, digested, or calcined. Thus, we find a *water of snails*, a *spirit of millepedes*, an *oil of earth-worms*, &c. &c. The absurd and pompous names by which the preparations were distinguished, are truly ridiculous. *Magisterial balsum*, *Hiera picra*, *Ethiops mineral*, *Ens Veneris*, *Flores Martis*, *Calomelas*, *Aquila alba*, are a few which long retained their feat both in public and private dispensaries. As these preparations were, from their contrivers, denominated *chemical*, the more ancient medicines which were drawn almost entirely from the animal and vegetable kingdoms, were denominated *Galenical*, because chiefly employed by the followers of Galen. Hence the division of medicines into *Galenical* and *Chemical*, a division which obtained for some hundred years, and which only a few years ago was preserved in the sale-catalogues of the London druggists.

The chief follower of Paracelsus was Van Helmont. He made many important chemical discoveries; strongly opposed the Galenical doctrine: and, though often misled in

his speculations by a strong bias to theosophism, he observed Nature very attentively; he pointed out more fully than Paracelsus had done, the influence of the epigastric organs on all the other parts of the system; and he gave some account of the origin of urinary calculi. The nature of inflammation was likewise explained by him, and the pernicious consequences of excessive bleeding well pointed out. Van Helmont had not, however, many adherents at the time he lived. His theory was afterwards taken up by Descartes, who attempted to explain all the phenomena of life according to chemical and mechanical principles. Thus, the circulation of the blood and animal heat were produced, according to him, by the ebullition or fermentation that took place in the heart; digestion was likewise performed by a species of fermentation; and the sensation of hunger proceeded from the acid which was evolved during the process. To explain the nature of secretion, Descartes had recourse to the corpuscular philosophy; comparing the secreting organs to sieves, which allowed only the more minute and homogeneous particles to pass through, while the coarser and heterogeneous bodies were rejected: the round particles were supposed by him to enter into cylindrical tubes; pyramidal particles penetrated by triangular pores, and cubical particles by square pores; and in this way each secretion remained distinct, at least in the healthy state. These ideas were eagerly embraced by the Dutch physicians of the time, and may be considered as forming the groundwork of the chemical and mechanical systems, which divided the medical world at the end of the seventeenth century, notwithstanding the claims to originality which several of their followers have put in.

After the revival of genuine philosophy in the sixteenth century, it might naturally be expected that medical science would immediately avail itself of its light, and partake of its benefit; but this was so far from being the case, that, in the first instance, it proved a new source of error, and threw fresh impediments in the road which was supposed to be opened to the improvement of rational medicine. The discovery of the circulation of the blood, may, indeed, be considered as one of the first fruits of the inquiries into nature begun in that age. But, though this is a fundamental element in the economy of the living body, it throws little or no light on the principles peculiar to life, being purely of a mechanical nature; and, abstractedly considered, hardly admits of any application to the practice of medicine. On the contrary, this discovery, by its perverted application, tended to corrupt and mislead, by a loose adoption of the principles of mechanical philosophy, so well laid down in that age by Galileo and others. Borelli, in investigating the force of the heart by experiment, estimated it at 180,000 pounds; Hales, at 51 pounds; Keil, at 1 pound. The mechanical powers of the stomach were, about the same time, subjected to experimental research by Pitcairn, who gravely gave out that he found this viscus, in the human subject, exerted a force equal to 12,900 pounds, in compressing food in the process of digestion. Others, conceiving that chemical power had the chief share in this function, endeavoured to evince that the change in the food was brought about by means of heat and fermentation. Sounder principles have referred these changes to powers which have nothing in common with the mechanical and chemical powers which characterize inanimate nature.

From the picture that has been exhibited of the innumerable doubts and difficulties which clog the attainment of medical knowledge, and embarrasses the application of it to practical purposes, the timid, sceptical, and indolent, may be discouraged from studies apparently so arduous in their prosecution, and so questionable as to the efficiency and utility of their result. But it is not from characters of this description that much good can be expected in any of the useful arts of life. If a like despondency were to pervade mankind in general, there would be an end to all that enterprise and energy which alone can enable them

to act up to their destiny, and follow up those pursuits upon which the perfection of their nature depends. As the senses would have lain dormant for ever had there been no external objects to stimulate them, so the faculties and virtue which characterize rational nature and civilized life could never have been developed, but through the excitement of those pains, wants, difficulties, and dangers, inseparable from human life. By no other arrangement could our duties, our happiness, our mental and bodily perfections, have been bound together in one harmonious and consistent system. Let us compare the art of medicine, under this aspect, with those of navigation and agriculture. Had man been furnished by the Creator with wings, by which he could have traversed all seas and oceans, so as to supercede the use of ships, where would have been that hardihood of character, and all those ingenious devices which have called forth the active energies and deep researches of the human mind? If, contrary to the actual institutions of Providence, the life of man had been sustained by the spontaneous productions of nature, instead of the products of industry, neither the faculties of the mind nor the powers of the body could ever have been developed: man would have been little superior to the brutes; his active and inventive energies would have lain asleep for ever; there would have been no room for the talents exercised in the procuring of food, raiment, and shelter, nor in commercial intercourse; all the mutual and endearing ties and dependences of social and civilized life, all trades, professions, arts, and sciences, whether ministering to accommodation or elegance, constituting man's greatest felicity, whether as objects of pursuit or enjoyment, would have been unknown and untasted. It is obvious that this reasoning, being founded on a general law of nature, must apply equally to medicine. In a probationary existence, it was necessary that man should be tried, not only by pain and sickness, but by the difficulties of remedying them, as exercises of virtue and ingenuity. Why should the road to medical relief lie through fewer and slighter struggles and dangers, than those of navigation and agriculture? But the subject is more concisely and emphatically illustrated by the philosophical poet, than by any amplitude of illustration, or farther multiplicity of words which we could employ:

——— Pater ipse colendi (*medendi*),
Haud facilem esse viam voluit, primusque per artem,
Movit agros, (*agros*), curis acuens mortalia corda.

We shall conclude our view of the general state of pathology in the sixteenth century, with some account of the violent disputes which prevailed in France, on the prerogatives of the medical art over those of surgery, but particularly on the contested privileges of the surgeons. Although the documents relative to this subject have been partly printed, or have at least not been withheld from the inspection of historians, yet no part of medical history has been conducted with more partiality, and less regard to truth, by both parties. The author of the work entitled "*Recherches sur l'Origine et la Progrès de la Chirurgie en France*" is guilty of the grossest misrepresentation, though this book has by some been ascribed to Franc. Quesnay. Pasquier, in his "*Recherches de la France*," fol. Paris, 1620, deserves much more credit; and, therefore, the most important points relative to that extraordinary dispute are here briefly collected from his more authentic statement. And this also will remind the reader of similar disputes in our own country, and about the same time: for, it has been already hinted, that, during great part of the 16th century, surgery was practised indiscriminately by barbers, farriers, and fow-gelders. We know that barbers and surgeons continued for 200 years after to be incorporated in one company, both in London and Paris. In Holland and some parts of Germany, we are told, that, even to this day, barbers exercise the razor and lancet alternately.

The surgeons of Paris had, since the time of Lanfranc,

(1295), formed a distinct body, called the College of St. Côme; and they obtained additional and respectable privileges from Philip the Fair, in 1311, which entitled them to equal rank with the members of the medical faculty; hence they could not bear the idea that barbers should usurp the right of bleeding, applying plasters, and treating external injuries and ulcers. In consequence of this encroachment, the surgeons, in 1425, obtained an act or arrêt of the parliament of Paris, by which the performance of chyrurgical operations was prohibited to the barbers, while they were permitted to dress wounds, and extirpate corns by the knife. But the physicians embraced the cause of the barbers, and instructed them in the practice of surgery, with a view to take revenge on the surgeons, who, it was affirmed, had usurped medical privileges. The complaint of grievances which the surgeons, on this occasion, laid before the faculty, in the years 1491 and 1494, were not attended with any effect; and the members of the faculty were even permitted to deliver anatomical lectures to barbers in the French language. The surgeons again, though in vain, represented to the faculty, that they acted contrary to the laws made by themselves, by permitting their members to instruct barbers in the knowledge of anatomy, and this in their native language. However, no other redress could be obtained, but that of licensing the surgeons to undertake public dissections, and of granting them a certain rank above the barbers, for which they paid sixty solidos annually to the treasurer of the faculty. This event took place in the year 1502; and in 1505 the surgeons renewed their application in the character of scholars or pupils to the faculty, whom they intreated to confirm their privileges; but Helin, the senior of that body, sent them the discouraging answer, that their pretended rights or immunities had been acquired by surreptitious means.

In the same year, the physicians of Paris, as Pasquier expresses himself, "passed the Rubicon," and entered into a formal contract with the barbers, who, on account of their implicit obedience, were patronized in preference to the surgeons. The barbers were consequently, in contempt of the surgeons, pronounced to be "the true scholars of the faculty:" they were matriculated under that name; but a promise was exacted from them, according to which they were not allowed to administer internal medicines, without consulting, in every case, a member of the medical faculty; they farther agreed to undergo an examination, previous to their commencing business as masters. After that period, the barbers were no longer called *Barbitonsfores*, the complaisant faculty having conferred on them the more honourable title of *Chirurgici a Tonstrina*, or *Tonsfores Chirurgici*. A few days after this change, the faculty proceeded to such extremities as to prosecute the surgeons in a court of law, because they had received information, that several surgeons had prescribed internal remedies without the previous advice of a physician.

At that time, probably, no man of genius and activity presided over the College of St. Côme; for no sooner was Stephen Barat elected president of that college, than the situation of affairs was thoroughly changed. In the year 1515, he urged the faculty to exempt the society of surgeons from the oppressive tax they were obliged to pay annually, and not to compel them to attend the lectures given by members of the faculty. As Barat addressed himself to the whole university, and as old Helin, the most zealous antagonist of the surgeons, died in the same year, this remonstrance had the desired effect. The university issued a decree, by which the surgeons of Paris were nominated *Scholastici*, or perpetual scholars of the faculty. But still greater immunities were granted to the surgeons in 1545, by the good offices of William Vavasseur, principal surgeon at the court of Francis I. He effected a complete separation of the barbers from the surgeons; and at the same time obtained a decree, in conformity to which every master of the chyrurgical art, if he wished to obtain the privilege

privilege of exercising his profession, was obliged to study the Latin language, logic, and other elementary sciences. By this favourable regulation, the College of Surgeons was at once raised to the rank of a learned school, and obtained at length the right of creating Masters, Bachelors, Licentiates, and Doctors, of Surgery. In consequence of this arrangement, Henry II. granted to the members of the Chirurgical College of St. Louis, all the prerogatives attached to a faculty; and the patent issued on that occasion was registered in the parliamentary laws, under the name of *Lettres d'Oâroi*.

In the year 1551, the medical faculty, under the deanery of John du Hamel, re-commenced the dispute against the surgeons. Although Rudolph le Fort, dean of the College of St. Louis, zealously defended the surgeons, yet du Hamel found the means of procuring a repeal of the decree enacted in 1515; and, contrary to the spirit of that law, the surgeons were again obliged to submit to an examination before the medical faculty. Under Henry III. however, the surgeons once more obtained a confirmation of their privileges, in 1577, by virtue of which they were entitled to confer academical dignities; and, notwithstanding the new opposition of the faculty in 1579, the surgeons, as well as the university of Paris, were in the same year favoured with an indulgence of pope Gregory XIII. while de Thou vindicated the cause of the former, in a spirited and successful manner, against the oppressions of the faculty. The colleges subsequently established by surgeons acquired such a degree of authority, that, in the year 1596, they were empowered to give positive orders to the barbers, in difficult chirurgical cases always to consult a sworn surgeon, and upon no account to undertake the treatment of any other but the slightest external injuries. These privileges and prerogatives of the surgeons of Paris were further confirmed by Henry IV. in 1602, and by Louis XIII. in 1614.

About this time was framed the following oath, which to this day is taken by every physician who takes a degree at the university of Montpellier. "I, _____, before the image of Hippocrates, in presence of the professors of this school, and of my dear fellow-collegians, do swear, in the name of the Supreme Being, to be faithful to the laws of honour and probity in the exercise of medicine. I will give my care gratuitously to the indigent, and will not exact a salary beyond my just demands. Admitted into the interior of families, my eyes shall not see what they ought not to see, nor shall my tongue betray any secrets confided to me; nor shall my profession be made available to corrupt morals, or to favour guilt. Respectful and grateful to my masters, I will endeavour to return to their children the instruction which I have gathered from the fathers. May men grant me their esteem in proportion as I am faithful to this oath; and may I be disgraced among my colleagues when I swerve from it."

III. From the SEVENTEENTH CENTURY to the PRESENT TIME.

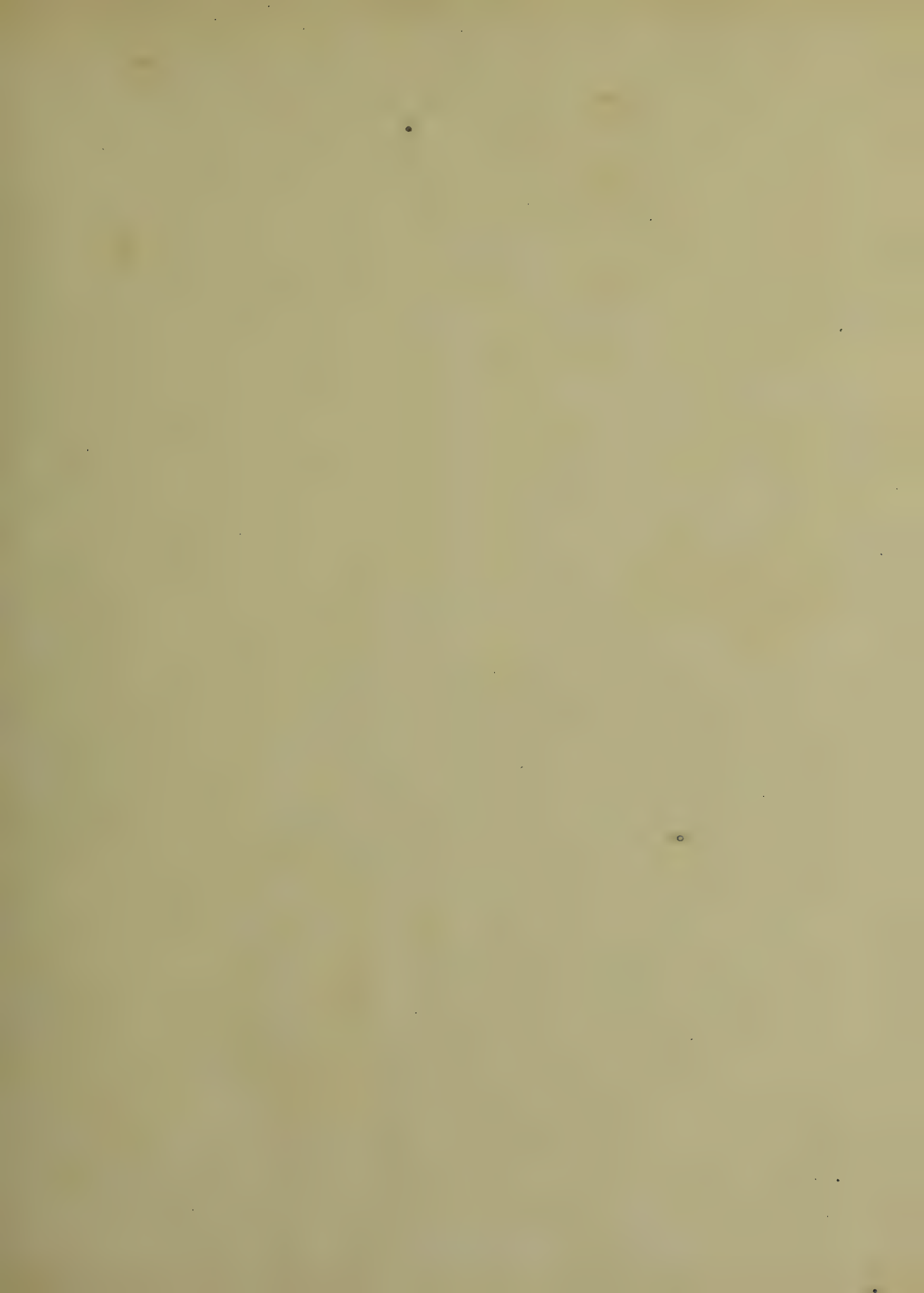
The most brilliant discovery of the 17th century was that of the *circulation of the blood*, by our countryman Harvey, who was born in the year 1578. He first opened the discovery in 1616, in his lectures in the Latin language, which are preserved in MS. in the British Museum; but his work, containing the details, was not published till the year 1628, when his "*Exercitatio anatomica de Motu Cordis et Sanguinis in Animalibus*" appeared at Frankfurt: and this is the only edition which bears the stamp of Harvey's own authority. This treatise, which Haller has most appropriately styled *ovureum opusculum*, is constructed entirely upon the result of experiment, and contains an excellent arrangement of the subject. The author was now created physician to king Charles I. and demonstrated the circulation before him in a living animal.

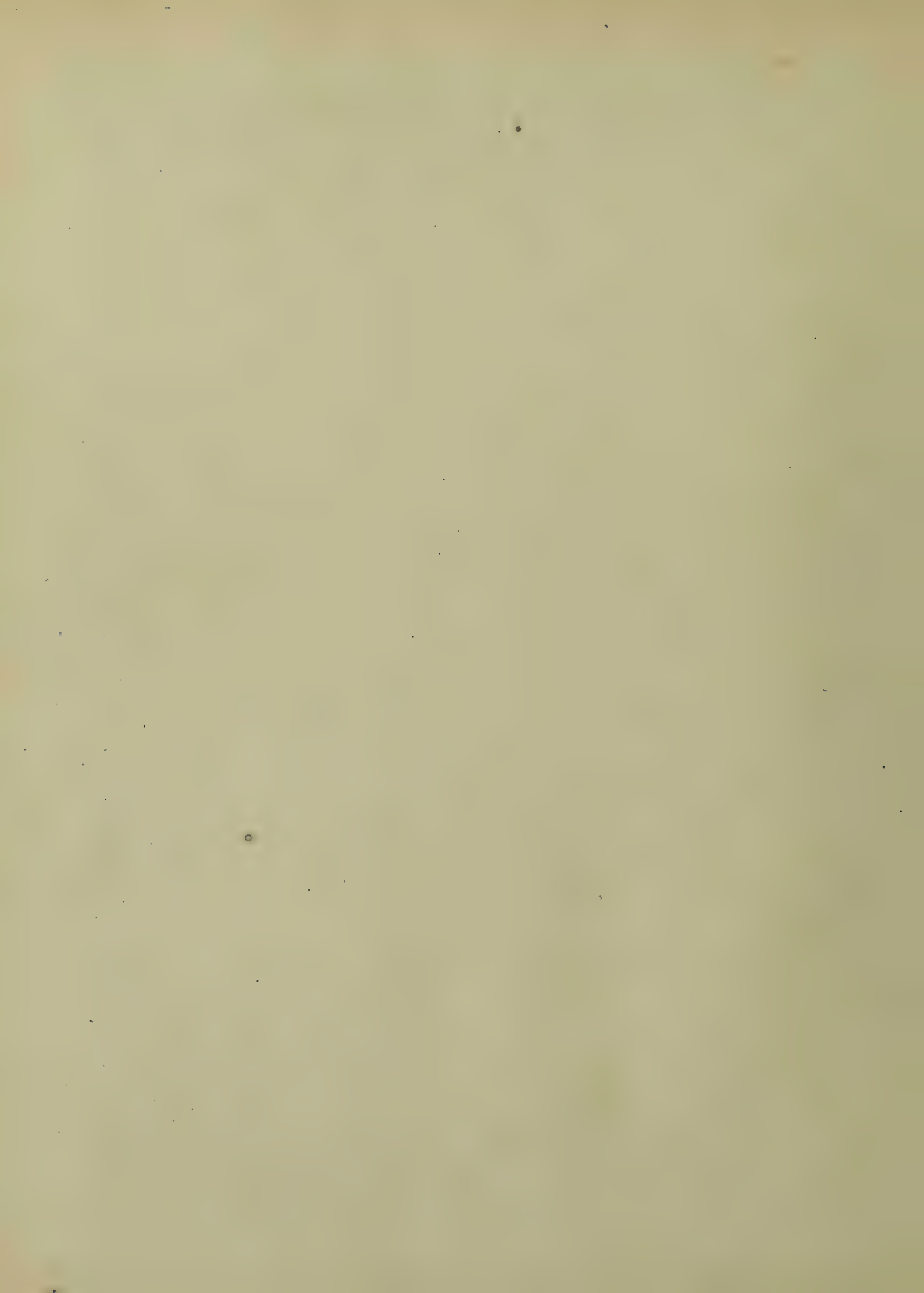
The vast importance of this discovery to the whole

science of physiology; the influence which it necessarily exerted on the doctrines of pathology; and the general revolution which arose from this source throughout the whole circle of medical knowledge; will justify us in giving a slight historical sketch of the subject, and in pointing out the opinions held by those anatomists and physiologists who preceded our immortal countryman Harvey. To him, indeed, the glory of this greatest of all physiological discoveries has been assigned by the almost unanimous concurrence of his successors. Some, however, have endeavoured to deprive him of his well-earned fame, by ascribing a knowledge of the circulation to various preceding writers. Mr. Dutens, in the second volume of his "*Recherches sur l'Origine des Decouvertes attribuées aux Modernes*," has brought forward passages from Hippocrates, Plato, Aristotle, Julius Pollux, Apuleius, and others, in order to prove that they knew the course of the blood. After the positive dogmatical assertions with which the author sets out, we are surprised by the weakness and inadequacy of his proofs, and can only account for the inconsistency by supposing him to have been utterly ignorant of the subject. He quotes a few interpolated passages which cannot, by the most favourable interpretation, be construed into the semblance of a proof, that the writers in question knew the circulation of the blood. But the only fair and unexceptionable method of determining whether any individual was acquainted with a particular fact, is to consider all that he has said on the subject, and to draw our inferences from the result of this general examination. Such an inquiry will prove most clearly, that a knowledge of the circulation, such as we possess at present, can be ascribed to no one before Harvey; although a part of the subject, viz. the passage of the blood through the lungs, had been described by several persons before the time of that illustrious character.

That the blood moves, has been universally known and admitted, since the science of medicine has assumed a distinct form: how much of its course, and of the laws that regulate its motion, has been ascertained at any given period, is another question. The circulation is so generally known in the present day, and the proofs on which it rests are so obvious and familiar to every tyro in the profession, that we feel surprised how they should so long have escaped the observation of the numerous ingenious and learned characters, whose names adorn the annals of anatomy. We must remember that the course of the blood, taken altogether, forms a subject of considerable intricacy; that the pursuit of anatomy was attended in the early periods of the science with considerable difficulty and danger; and that the unlimited sway which the authority of Galen held over the minds of men for some centuries, precluded all attempts at further investigation.

Hippocrates states that the blood meets with obstacles in its course, which retard or entirely arrest its progress; that it goes from the internal parts towards the surface; and *vice-versâ*, that the blood must flow forwards from the heart, since the valves hinder its return, and that the arteries are distended when their blood is stopped. In speaking of the blood's motion, he compares it to the course of rivers, to the ebbing and flowing of the sea, and even to the revolutions of the planets. He assigns the origin of the arteries to the heart, and that of the veins to the liver; and supposes that there are two opposite motions in the temporal arteries, by which their pulsations are produced. He speaks of four fluids in the body, the blood, water, mucus, and bile, which come from the heart, head, spleen, and liver; all those parts are, however, supplied from one principal source, the stomach. Can we discover any traces of a knowledge of the circulation in this confusion of ideas; and may we not be justly surprised, to find that enlightened men should be so led away by their prejudices, as to allow to Hippocrates the knowledge of a discovery, which no one had perceived in his writings for nearly three thousand years? The observations of the founder of medicine had led
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astray all who followed him to the time of Harvey; but, when the researches of that great man had unfolded the mystery of the circulation, his enemies dared to affirm, that the writings of Hippocrates had furnished the lights which guided him in the path of discovery.

The philosophers who joined the study of medicine to that of the other sciences, seem to have been equally ignorant of the laws which regulate the blood's motion. Thus, Aristotle expressly states that the blood never returns to the heart. The Alexandrian anatomists maintained that the arteries held no blood, but were filled with air; from which circumstance they gave them the name, which they have constantly retained, from *αἶψα*, air, and *ῥηπειν*, to hold. To explain the occurrence of blood in these vessels after death, they supposed the existence of subtle communications with the veins.

The genius of Galen diddained to follow blindly the steps of his predecessors; and he endeavoured at least to discover the truth by experiments and observations on the structure of the body. By these means he ascertained some facts, although he could not succeed in piercing the veil which concealed the secret of the circulation. He seems to have recognized the use of the valves at the two orifices of the ventricles. He proved, by tying an artery with two ligatures, that these vessels contain blood during life; and states that they are filled by the contraction of the heart, in consequence of which they pulsate. These circumstances seem to indicate a considerable advancement in the knowledge of the circulation; but we must mention, in the same spirit of impartiality, the contradictions and uncertainty which prevail in the works of Galen on this subject, and the limits which his labours could not exceed. He still referred, with Hippocrates, the origin of the veins to the liver, and supposed a passage of the blood through the septum of the ventricles, while a small portion entered the pulmonary artery to nourish the lungs: he imagined, lastly, that it might pass reciprocally between the pulmonary artery and veins.

There could be little reason to expect, that in the troubled and barbarous times which followed the age in which Galen flourished, the secret of the circulation should be discovered; still less that it should be explained to physicians by men whose pursuits were foreign to the science of medicine. Yet it has been boldly asserted that Nemeseus, bishop of Emesa, knew the course of the blood, as it has been ascertained by the subsequent labours of Harvey. The editor of the Oxford edition of his works, has imbibed the true spirit of a commentator; who discovers in the writings of the ancients, meanings which never were in the contemplation of the authors; and abuses the moderns as plagiarists, for decorating themselves with the discoveries of antiquity. But on what grounds does Nemeseus claim the honour of a discovery, denied to so many great geniuses? Because, according to Freind, the bishop states, that the blood passes from the arteries into the veins during sleep. This restriction immediately overturns the claim; which would indeed be destroyed by the kind of motion that he supposes to take place, viz. a reciprocal alternation of undulations, like that of the Euripus. In another passage cited by Dutens, he speaks of the arteries in their dilatation attracting the blood from the veins; but this passage, which we have already quoted at p. 16, sufficiently proves that he knew nothing of the matter; and exemplifies still further the absurdity of a person's attempting to dogmatize, as Dutens has done, on subjects of which, as being foreign to his profession, and difficult of investigation, he cannot reasonably be expected to be a competent judge. "Thus," to use the words of Senac, "a theologian writes on the nature of man; a subject which does not very properly belong to such a writer: on no other testimony than some vague and ridiculous expressions, he gains the credit of knowing the circulation, of which the greatest physicians and anatomists had been hitherto completely ignorant. Thus it is, that interpreters and com-

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mentators are misled by a blind zeal for antiquity, and discover hidden meanings in the most simple expressions. How would their boldness and assurance have been augmented, if Nemeseus had expressed himself as clearly as an ancient scholiast of Euripides has done, where he says, "that the blood flows through the veins, and that these vessels receive it from the arteries." Should we, however, on this insulated and casual expression, be justified in bestowing on a weigher of words, and measurer of phrases, the honour of a discovery, which had eluded the researches of the greatest philosophers?

The state of darkness and ignorance, in which the human mind languished during the succeeding ages, does not allow us to expect that any writer of that period can dispute with Harvey the honour of the great discovery. About the sixteenth century the curiosity of mankind was again excited to the investigation of this interesting subject. Reason, which had hitherto submitted to the yoke of authority, began to assert her rights; and several physicians were bold enough to examine subjects which Hippocrates and Galen had not been able to develop.

The first ray of light was thrown on the circulation, by a man, whose name cannot be mentioned without exciting feelings of compassion for his unmerited and barbarous treatment, and of indignation at the unrelenting bigotry of his cruel persecutor. Gifted with an ardent and penetrating genius, *Servetus* made a rapid progress, at a very early age, in the sciences of natural philosophy and divinity. Compelled to leave Spain, his native country, he passed into France, and studied medicine at Paris, under Winter d'Andernach, who was professor in the college lately founded by Francis I. He visited different parts of France and Germany, and, after various persecutions on account of his religious opinions, settled in Dauphiny. But Calvin, being too narrow-minded to grant to a rival that freedom of thought and liberty of conscience which he had so successfully exerted in his own person, had him seized and condemned to the flames. Thus, says Portal, "one heretic destroyed another; but the difference was, that an ambitious and designing knave pronounced the condemnation, and one of the finest and most enlightened geniuses of Europe was the lamented victim of this iniquitous sentence."

The passage, which proves *Servetus* to have been acquainted with the pulmonary circulation, occurs in his work *de Restitutione Christianismi*; which, having been carefully destroyed on account of the heresy which it contains, is now extremely scarce; so that two or three copies only are supposed to exist, and the duke de la Valiere gave the sum of 1321. for one. It states, that the vital spirit is composed of the most subtle parts of the blood, and of the air, which insinuates itself into the lungs; and that the source of this blood is in the right ventricle. "But the communication, that is to say, the passage of the blood, from the right to the left ventricle, does not take place across the middle septum, as persons have generally imagined; it depends on a more singular structure. In the long windings of the lung, this subtle blood is agitated, and prepared by the action of the viscus, and gains a yellow colour. From the *vena arteriosa* (pulmonary artery) it passes into the *arteria venosa* (pulmonary veins) where it becomes mingled with the air that has entered the lungs, and loses its fuliginous excrements. Lastly, it enters the left ventricle, which attracts it in its diastole. Such is the preparation of the blood, from which the vital spirit is formed; this preparation, and this passage from the arterial vein into the venous artery, are evidently proved by the size of the vessels; which would not be so large, nor possess so many branches; nor carry to the lung so great a volume of blood, if it were destined to the nourishment only of the viscus." He adds, that the vital spirit is sent from the left ventricle into all the arteries of the body. This representation proves incontestably that *Servetus* knew the minor circulation. He laid the foundation of a building,

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which

which had baffled all the efforts of the great geniuses of antiquity. In order to perfect this design, it was only necessary to extend the ideas of the first architect. He indicated the route, through which the blood passes from the right to the left ventricle; it remained to be proved that all the blood takes this passage, and that it returns again to the heart from the arteries through the veins.

The obscure sketch of the circulation, which was furnished by Servetus, appears in a more finished and luminous form in the works of Realdus Columbus. He describes the entrance of the blood into the heart from the vena cava, and its subsequent passage through the lungs into the left ventricle and aorta. He advanced a step farther than Servetus; for he states that the whole blood passes through the lungs, and not the vital spirit only. But he falls into the same error with preceding anatomists on the subject of the liver; supposing that gland to be the source of the blood which nourishes the stomach, spleen, &c. Arantius and Cæsalpinus described more perfectly and clearly than Columbus the passage of the blood through the lungs; which they confirmed by several arguments drawn from the structure of the parts, and particularly from the position and mechanism of the valves. The latter indeed approached very nearly to the grand desideratum, the passage of the blood from the arteries through the veins to the heart. He observes that a vein swells below the ligature; but he did not follow this up to prove the circulation. He says that the blood returns to the heart through the veins during sleep; but he supposed it to move backwards and forwards in the same vessels, like the Euripus. He was misled also in the labyrinth of the liver, where so many physiologists have lost themselves. The arrangement of the arteries and veins in this organ presents such an intricate combination, that we need not wonder at its proving, for so long a time, a source of mistake and illusion. Paul Sarpi, the learned historian of the council of Trent, is one of those to whom the circulation is said to have been known; but the want of all arguments that bear the least conviction on the subject, will justify us in declining any particular consideration of his claim, as well as those of Fabri a Jesuit, of Helvicus Dietericus, and others.

Notwithstanding the labours and writings of the anatomists whose opinions we have thus cursorily examined, the minds of men were still enslaved by those errors, which, having prevailed for so many centuries, had acquired the sanction which time and authority bestow on any opinions, however absurd. The most enlightened physicians were satisfied with the labours of their predecessors; and Harvey alone had sufficient courage and information to canvass these inveterate prejudices, which length of time had consecrated as infallible truths. He observed and described the true course of the blood with a wonderful sagacity and clearness. None of the arguments, which prove the circulation, escaped the researches of this acute observer; so that a modern physiologist, in recounting the proofs of this physiological fact, could add little, if any thing, to what is accumulated in the original work of Harvey. He was not contented with demonstrating the circulation in some parts only; but followed up the subject in all the viscera of the body. He traced the course of the blood through the liver, where every preceding anatomist had discovered nothing but perplexity and confusion. The work of Harvey is, in short, one of those rare and precious productions which embrace a subject in its whole extent, and present it to the mind in so perfect and finished a form, as scarcely to admit a single addition or improvement.

The merits of our countryman, whose fame can never perish while medical science continues to be cultivated, will be exalted to a still higher pitch, when we consider the state of medical knowledge in England at that time. While anatomical schools had been long established in Italy, France, and Germany, and several teachers had rendered their names illustrious by the successful pursuit

of the science, anatomy was still unknown in England, where dissection had hitherto hardly begun. Yet, at this inauspicious period, did Harvey make the discovery, which may be considered as a second and more perfect foundation of the science of medicine; and which amply justifies Haller in ranking him as second to Hippocrates only.

The publication of this grand discovery roused the attention of all Europe. The old professors, accustomed to pay a blind and implicit deference to the authority of Galen, which was now utterly subverted, and, ashamed of confessing that their whole life had been spent in teaching the grossest errors, took up their pens in opposition to the author of these innovations. One party asserted that the discovery was not a new one: that it had been known to several persons, and, indeed, to all antiquity. Such were the assertions of Nardi, Vander Linden, Hartmann, Almeloveen, Barra, Drelincourt, Patin, Falconet, Heister, Regnault, &c. A sufficient refutation of these statements will be found in the historical sketch, which we have already exhibited. Other adversaries of Harvey proceeded in a more rational manner; and attempted to disprove his statements by experiment and reasoning. Primerose led the way in this attack, and he was followed by Emilius Parianus, John Riolan, Caspar Hoffman, and others. If men of such acknowledged erudition as Riolan and Hoffman were so utterly unacquainted with the circulation as to deny it altogether, may we not safely conclude that the subject is not described in any of the writers who preceded Harvey? Out of all his numerous opponents, this illustrious man answered Riolan only, in his "*Secunda et Tertia Exercitatio de Circulatione Sanguinis*." The reply was rather extorted by the rank and fame of Riolan, than by the strength of his argument.

If we seek to define exactly the precise share of merit which Harvey may claim in the grand discovery of the circulation, it will be necessary to hold a middle course between the gross and palpable absurdity of those who discover a knowledge of the circulation in the writings of Solomon, Hippocrates, Plato, Aristotle, &c. and the too great partiality of such as would deny all knowledge of the subject to every anatomist who preceded Harvey. It seldom happens, that so extensive and intricate a subject as that which we are now considering, is surveyed and brought to light in all its branches by the labour of an individual; nor has it happened in the present instance. For Servetus, Columbus, Arantius, and Cæsalpinus, were acquainted with the course of the blood through the lungs; and the latter writer has even an obscure hint towards the greater circulation. But no one attempted to prove the latter point by arguments and experiment before the time of Harvey: the expressions of Cæsalpinus, which are by no means clear or satisfactory, had been before the public for half a century without exciting the least investigation, and without suggesting to Fabricius the true office of the valves in the veins. The entire merit of the greater circulation may, therefore, be ascribed to our illustrious countryman; and, if we compare the luminous method and irrefragable proofs which are found in his exposition of the other part of the subject, with the partial and confused statements of preceding authors, his merit will here be only second in degree to that of actual discovery.

The doctrine of the circulation met with some supporters on its first promulgation. Walæus of Leyden exerted himself strenuously on this side, and defended the propositions of Harvey in two excellent letters addressed to Bartholin. Des Cartes also, whose authority at that time carried vast weight with it, took a decided part in the controversy in favour of Harvey, from its commencement. The doctrine was pretty generally admitted throughout Europe before the decease of its proposer.

The nature of the communication between the arteries and veins was left undetermined by Harvey, who decided no point which he could not make the subject of experiment.

experiment. The art of injecting the vessels of the dead body, which has been discovered and carried to great perfection since his time, has shown a continuation of canal joining the two systems of blood-vessels; and the employment of the microscope has completed the proof, by demonstrating the circulation in the transparent parts of frogs, &c. during life. The transfusion of the blood of one animal into the vessels of another, which has been performed with success in many instances, has added another strong proof to the demonstration of the circulation. See the *Histoire de l'Anatomie et de la Chirurgie* of Portal, and the *Bibliotheca Anatomica* of Haller, in the articles concerning the writers whose names are mentioned in this account.

Francis de le Boe, otherwise Sylvius, was born at Hanau in 1614; and became professor of medicine at the university of Leyden in 1638. He will be therefore readily distinguished from James du Bois, who is also called Sylvius, the master and violent adversary of Vesalius, of whom we have sufficiently spoken in the preceding section. Francis Sylvius was a much more distinguished personage: he was also one of the earliest advocates for Harvey's doctrine of the circulation of the blood, and was the principal cause of its reception into the medical school of Leyden. In other respects, however, he was instrumental in retarding the progress of medical science, by the invention of an hypothesis respecting the cause of diseases, which contributed much to excite the attention of the medical world, and to extend his own fame. He ascribed all the morbid actions of the vital system to certain chemical operations, to fermentations, and ebullitions, which he believed gave origin to an excess of acid or of alkali, to the neutralization of which all the efforts of the medical art were of course to be directed: whence he administered volatile alkali, absorbent earths, and cordials, largely, paying little regard to the different stages of a disorder, or the character of prevailing epidemics. The extent to which this doctrine was received and defended in most parts of Europe, founded as it was upon a gratuitous hypothesis, and therefore productive in many cases of much mischief, is surprising, and the interruption which it occasioned to the improvement of medicine was considerable. In fact, the *chemical system* of Sylvius was admitted in almost every country in which chemical science was cultivated: it was in Holland and in Germany however that it was carried to the most extravagant pitch. While one physician was earnestly employed in changing the acid state of the blood, another took great pains to counteract the alkaline properties of the same fluid. While Bontekoe, deducing all morbid phenomena from the viscosity of fluids, eulogized the medical properties of tea, and drenched his patients with fifty cups in succession of that liquor; Van Rustingh prescribed assiduously large quantities of volatile salts in the most inflammatory complaints; believing that the two elements of fire and water composed the substance of all living bodies, and that to restore their balance of power or equilibrium was the only propitium of the medical art.

In our own country the more moderate of these tenets, with some degree of modification, acquired celebrity. Willis, Flower, and others, adopted them, and, multiplying on the acid and alkaline humours of Sylvius, asserted the existence of a great many different humours, viz. mucilaginous, vitriolic, corrosive, &c. each of which they thought had the effect of producing a disorder *sui generis*: and hence they endeavoured to trace the various characters of disease. The phenomena of fever they likewise attempted to explain according to the chemical laws of fermentation and ebullition. And, though Willis probably used these terms merely in an analogical sense, yet many physicians of his time applied them to the human frame in their strict and chemical signification.

With respect to the precise mode by which these actions were thought to bring about the phenomena of health or

disease, the following is a brief summary. Digestion was supposed to be carried on by *fermentation*. If this process was too active, or, on the contrary, too weak, improper or unfermented particles of aliment remained, which, when assimilated and introduced into the blood, produced the same effect on that fluid as certain substances called *ferments* do upon vinous liquors; viz. they produced fermentation. Now, viewing the matter in this light, these chemical pathologists defined *fever* to be a fermentative process which nature instituted for the purpose of throwing off the aforesaid offending humours or cacochymia. If nature succeeded in performing this task, health was restored; if not, death ensued. Some diseases were however produced by external causes; for instance, infectious and contagious distempers, &c. but then each of those disorders was brought about by means of *humours*, whether derived from the air by means of respiration, or from actual contact.

It is rather remarkable, that these physicians admitted a third cause of production of cacochymia; which went to overturn their whole system. They expressly stated, that organic disease of any of the viscera engendered a *peccant humour*; hence we naturally infer, that in this case the solid or fibrous structure was the first cause of disease.

In Italy, where mechanical science had made much progress, the chemical doctrine obtained few supporters. Indeed, anterior to the period we are treating of, Sanctotus had, in his exposition of the cutaneous functions, taught physiologists the illustration which the vital derived from the consideration of the mechanical laws. He endeavoured to distinguish the different alimentary matters according to their specific gravity, and referred disease to an obstructed state of the exhalant system: an opinion, however, which this author carried too far, and which was by no means conducive to his successful practice. Nevertheless it has been of great importance to his more enlightened successors.

Sydenham was born about the year 1624. One of the greatest benefits which he conferred upon the science of medicine was that of detaching physicians from this and other hypothetical systems, and of leading them to the only true path, observation and experience. He introduced a great reform into medical practice. Though not entirely free from the humoral hypotheses which were so prevalent in his time, yet he took care to study nature with exactness, and he reported her appearances with fidelity, even when opposed to his own reasonings. Indeed in many parts of his writings he takes occasion to deprecate the practice of his predecessors, because they not only did not sufficiently remark the minute phenomena of disease, but because they actually misrepresented those phenomena for the purpose of corroborating their fanciful theories. Nor did Sydenham admit the chemical explanation of disease which was so strongly insisted on by his contemporaries, and even successors; for he expressly states, that, although he has no objection to the terms *ebullition* and *fermentation*, yet he rather uses them as illustrating certain morbid processes by analogy than in their own commonly-received sense: and indeed he quotes some very judicious arguments tending to disprove the identity of those chemical processes with diseased actions. This author followed very closely the steps of Hippocrates: like him, he was principally intent on observing the minute features of disease, and of referring them to their obvious and immediate causes; like him, he admitted to a great extent the salutary operation of nature, and the deleterious agency of humours; and like him too he paid particular attention to atmospheric changes, and the effects of them on the human body. Indeed the chief merit of Sydenham consisted in writing clearly, fully, and from his own individual observation, the history of diseases. He investigated the minutest changes which occurred in them, whether spontaneously or from the action of remedies, as well as those

arising from temper, age, constitution, or other adventitious circumstances.

A system of therapeutics founded on such a basis could scarcely deviate from the right path; and accordingly the works of this author remain most important studies, whether regarded as indications to the art of diagnosis, or to the cure of disease. His practice was in the most eminent degree successful; and among the remedies he had recourse to we may remark many which are again firmly established after having long fallen into discredit under the inauspicious influence of speculative theorists. Among these, the use of bleeding, and other antiphlogistic methods, in the treatment of continued eruptive fevers, has conducted very materially to the preservation of the lives of our species. We may remark, that in this assumption we are borne out by the fatality which occurred during the exhibition of alexipharmics and hot cordials by the chemists, which the cooling system has very much obviated. The doctrines of Sydenham, notwithstanding the interesting style in which they were written, the fame they acquired for their author, and their consonance with nature, were by no means generally received; and the chemical doctrines continued to be advocated by many till the commencement of the following century.

In proportion as true chemical science advanced, the partiality for chemical explications of the functions of the living system abated; and physicians seem to have discovered, for the first time, that the theory of the humours, even with all the improvements which it derived from the corpuscular philosophy, threw no light whatever on the actions of the solids. A new hypothesis, therefore, was projected; and, as men in avoiding one error are apt to run into the opposite extreme, physiologists now attempted to explain all the phenomena of life according to the mere *mechanical powers* of the organs, and to reduce the laws of the animal economy to the rigid calculations of geometry. They imagined, that they could illustrate every operation of the human body, by comparing it to a system of ropes, levers, and pulleys, united with a number of rigid tubes of different lengths and diameters, containing fluids, which, from variations in the impelling causes, moved with different degrees of velocity. When the fibres of this machine were not sufficiently flexible; when the pulleys and joints of the levers were not kept in sufficient repair; or when the apertures of the pipes were not sufficiently free; the movements were necessarily suspended, or less perfectly performed; and they were only to be brought into proper regulation, according to the practitioners who adopted this fanciful theory, by removing the above-described impediments. The composition of the fluids was supposed to be the result of their motion in the tubes; and in these nothing was attended to but the forces of gravity and cohesion; as in calculating the action of a pump, or other hydraulic engine. "If the chemical school," to use the words of Sprengel, "had degraded the physician to the rank of a brewer or distiller, the disciples of the iatro-mechanical school, on the other hand, were glad to be esteemed as hydraulic engineers; and several of them, in fact, served in the double capacity of engineers and professors of medicine." One of them, Dionis, a professor of surgery at the Jardin du Roi, went so far as to compare the circulatory system to the water-works at Marly, by which the water of the Seine is raised to considerable height, and from thence made to fall again upon the great wheel.

Among the causes which conducted to the establishment of this sect, the discovery of the circulation of the blood is the most prominent. When it was found that the blood flowed in a regular manner, through certain conduits, from the heart, and returned to that organ, by other vessels, from the extremities, physicians set about calculating the mechanical force which they supposed necessary for enabling the heart and arteries to produce this

effect; and, elated with their apparent success, were led by degrees to transfer their calculations to the other functions of the body. Geometry had become the prevailing study of the learned; and societies for the promotion of experimental philosophy were established in the different countries of Europe, among which the Florentine Academy del Cimento took, in some measure, the lead. It was in Italy that mathematics had been most assiduously cultivated; and it was there that the first attempt was made to introduce them into medicine. In the year 1614, Sanctorius published his *Medicina Statica*, in which he endeavoured to show the great influence which the insensible perspiration has upon health, and to calculate with precision all the variations in its quantity, in the different conditions of the body. According to his theory, diseases originated from the noxious particles of the food being retained in the system, in consequence of the stoppage of the transpiration; and, till the latter function was restored to the proper standard, no cure could well take place. Sanctorius distinguished the different alimentary matters according to their specific gravities, and according as they appeared more or less fitted to pass off in the way of insensible perspiration. He even ventured to apply his maxims to the passions of the mind; showing how joy and equanimity favoured the excretions, while sorrow and fear impeded them; how fevers and melancholy arose from the obstructed perspirable matter, where grief was long continued; and how they were to be removed by restoring the suspended exhalation. Among the aphorisms of Sanctorius, there are many found observations; and medical science is under considerable obligations to him for having directed the attention of physiologists to the functions of the skin, which, till then, had been in a great measure overlooked; but his views, like those of most theorists, were far too partial; and there can be little doubt that, in one respect, they had a most injurious influence, viz. by encouraging physicians in the universal employment of sudorifics, to which they were already too prone; and no one will now subscribe to the judgment of Boerhaave, who says of Sanctorius and his work, "*Nullus medicorum, qui ante eum scripserunt; cardinem rei ita adigit; nec ullus liber in re medica ad eam perfectionem scriptus est.*"

The mechanical philosophers began by calculating the force of the contractile power of the heart necessary to produce the phenomenon of circulation: but in this calculation they proceeded on the erroneous datum, that the resistance opposed by cohesion and gravity was the same in living vessels as in inanimate pipes. Even if this supposition had been true, yet they had no means of measuring the numerous diameters of these vessels, their curves, angles, &c. circumstances indispensably necessary to be known before the above-mentioned calculation could have been made. A more ingenious mode of illustrating the process of circulation was that adopted by Borelli. This author assumed that the power of a muscle was in direct ratio to the size of fibrous portion: hence, taking the deltoid muscle for an example, and having found the force that muscle was capable of exerting, he next proceeded to calculate the force which the contraction of the heart must exert according to its proportionally larger size. This assumption, however, is unfounded; for exercise increases the power of a muscle, without, in every instance, increasing its size: nor does it appear by what means he could precisely insulate the action of the deltoid muscle, seeing that it is inseparably conjoined with several others which co-operate with its motions. The experiments of Kiel and others, though founded on different assumptions, were not more satisfactory than those of Borelli. At this period, however, geometry was such a favourite pursuit among the learned, that its cultivation rendered the mind almost dissatisfied with every theory which did not bear the test of mathematical demonstration. These calculations therefore,

to which we must allow the merit of ingenuity, became generally received. Mechanical principles were applied to every function of the body: not only the motion of the blood, but the composition of that fluid, and the various and elaborate processes of nutrition, secretion, &c. were referred to the same laws. This absurd application of mathematical knowledge to vital phenomena, led these philosophers into a labyrinth of error astonishing to common sense. For instance, while one author calculated the contractile power of the femoral artery at upwards of 1000 pounds, he overlooked the very obvious circumstance, that the pulsation of that vessel may be immediately suspended by the use of a tourniquet which scarcely exerts the pressure of a few pounds. Indeed, the contradictory results arrived at by these experimenters showed the absurdity of their experiments. Thus, Borelli asserted that the contraction of the heart was equal to a resistance of 180,000 pounds; Keil, that it was equal to five, or, at most, eight ounces. Hecquet calculated the digestive (or, according to him, triturative) powers of the stomach, in conjunction with the abdominal muscles, to be equal to 261,000 pounds; Astruc stated the amount of that power at four pounds three ounces.

Yet was this mode of investigating the science of life by no means useless; for, by teaching pathologists to resort frequently to *experiment* in proof of their assertions, it destroyed the attachment to fanciful and gratuitous hypothesis which had so long prevailed: it directed their attention to parts and actions of the animal economy which the humoral physicians had passed over unnoticed and undescribed; and, what was of still more importance, it induced correct and analytical habits of reasoning. Accordingly, we find, during the 17th century, which may be considered as the period at which the mechanical philosophers principally flourished, discoveries which have stood the test of time, and theories, concerning the correctness of which we are still earnestly employed in discussion. Physiology and the minute parts of anatomy were investigated with the grandest results; the circulatory system was gradually and successfully illustrated by many distinguished physiologists. Excellent descriptions of the structure and relative position of the heart were given by Steno and Lower. The microscopical experiments of Leeuwenhoek and others served to establish the important fact of the continuation of arteries and veins with each other. Ruysch likewise, by the great degree of nicety in the use of injections to which he attained, was enabled to throw much light on this subject. Some important parts of the arterial system were discovered by Vieussens. The necessity of the absorption of oxygen gas through the lungs was first inculcated by Mayow. Malpighi improved the knowledge of the structure of those organs.

The mechanical part of respiration, the compound actions of the muscles, &c. were beautifully demonstrated by Borelli, and Kepler applied mechanical principles to the explanation of the functions of the eye in a manner the most clear and satisfactory. He first pointed out the true use of the crystalline lens, and showed how the images of external objects are formed, in an inverted position, on the retina. A public experiment with the eye of an ox, which was made at Rome, in 1625, by the Jesuit Scheiner, fully confirmed Kepler's theory: but afterwards Mariotte, having found that the images of objects disappeared when they fell on the spot where the optic nerve enters the eye, called in question the sensibility of the retina, and maintained that the choroid coat was better calculated to receive and transmit the perceptions of sight; and a controversy arose concerning the actual seat of vision, which was carried on, with great eagerness, by Pecquet, Perrault, and St. Yves, and which had the effect of eliciting many valuable observations. The Newtonian discoveries, respecting the properties of light, contributed still more to the accurate analysis of the functions of the eye; and the treatises of

Du Petit, Porterfield, and Zinn, which followed soon after, have left little for their successors to accomplish.

The lymphatic system was likewise brought into notice during this century. To Caspar Asellius is due the merit of having taken the first step in the investigation of this important part of the animal frame. While dissecting a dog, for the purpose of demonstrating the recurrent nerves, the appearance of a milk-like fluid issuing from some small white vessels arrested his attention. Examining them more minutely, he traced them to the villous coat of the intestines; and repeated dissections informed him, that these vessels were only observable in the animal which had lately fed. Hence he concluded these to be the *vasa chyliifera*. He confessed, however, that these vessels had been mentioned by ancient authors, though described in a very imperfect manner; but he justly claimed the honour of having first pointed out their use. Asellius, however, entertained erroneous ideas as to the termination of the lacteals: he supposed that they united together in the pancreas, and passed from that gland into the liver. This error was corrected by the researches of Pugent, who, observing on one occasion a milky fluid in the vena cava of a dog, traced carefully the progress of that vessel, and discovered the thoracic duct. This discovery was disputed however with much acrimony; and the character of Harvey was tarnished by the circumstance, that he stood forth among the most illiberal of its opponents. The absorbents of the large intestines were discovered by Olaus Rudbeck in the year 1651; he likewise refuted the received opinion, that the liver possessed lacteals, and, by their means, assimilating powers: he showed that the only absorbent vessels existing which could have led to this error, were the lymphatics of the hepatic glands. The glandular system in general was afterwards more fully illustrated by the writings of Glisson and Wharton, the experiments of Lower, Drelincourt, Lister, and Muirgrave; and the anatomical researches of Nuck, Pacchioni, and Duverney.

Nor were the more abstruse and difficult questions of physiology neglected by the philosophers of this age. With much talent Willis supported the hypothesis of a nervous fluid, the vehicle of animal spirits; and, when deficient or excessive, the cause of disorder; and he seems in some respects to have anticipated the speculations of Spurzheim and Gall, in referring to particular parts of the brain peculiar mental faculties. The errors of this author on the former subject were pointed out by Malpighi, who moreover investigated the cerebral structure with great minuteness, particularly in reference to the existence of fibres in the cortical substance. Here too the injections of Ruysch and the microscopical experiments of Leeuwenhoek were usefully employed to show the vascularity of the brain. Many improved descriptions were furnished by Cafferius, Duverney, Riverius, Vieussens, and others, of the structure of the ear. The tunica arachnoides was described by Swammerdam and Blaes. Many interesting experiments were made on the generation of animals; among which the most famous, though certainly not the most useful, was that of Leeuwenhoek on the animalculæ of the seminal fluid. See our article ANIMALCULE, vol. i. p. 727.

To the "triumvirate," as they have been called; Stahl, Hoffman, and Boerhaave, pathology and therapeutics are indebted for many important illustrations. The first of these physicians has rendered himself famous by the introduction of an hypothesis, which, with various alterations, has maintained its ground until the present day. We allude to the existence of an immaterial principle, or essence, as producing the phenomena of life. The particular tenets, however, on which this theory was founded, had been promulgated before the time of Stahl: René des Cartes had taught his followers to consider matter as purely passive, and to refer all the changes to which it is subjected to a spiritual cause: the union of body and

spirit was, in his estimation, merely one of its modes, or accidental conditions. Malebranche, extending the Cartesian doctrine, endeavoured to explain more fully the nature of this union, and to show that the soul had a more or less distinct consciousness of all the movements and affections of the body. From these tenets, the transition to the system developed by Stahl was very easy; and an attentive review of the progress of the opinions in question must convince every one that the Stahlian hypothesis, far from being entitled to the merit of originality which its author claimed, was nothing more than an offspring of the Cartesian philosophy. Educated under Wedel, who was a devoted adherent of Sylvius, and an assiduous teacher of his doctrines, Stahl began very early to question the sufficiency of those chemical explanations which he heard applied to all the phenomena of life. It appeared very wonderful to him, that the humours of the body, which are, of themselves, so disposed to putrefaction, should yet so seldom fall into that state; and that the daily presence of so many saline substances, as we are in the habit of receiving in our food, should produce so few symptoms of acrimony. The intervention of *animal spirits* he conceived to be a very unsatisfactory supposition; and all the attempts which had been made to explain the theory of life on pure chemical and mechanical principles he held very cheap. Taking the passiveness of matter for the basis of his system, he maintained, "that the body, as body, had no power to move itself, but was put in motion only by immaterial substances; that all motion, therefore, was immaterial, and a spiritual act." It had been always observed, that there is a certain power in the animal body of resisting injuries, and correcting some of its disorders; and Van Helmont had ascribed some degree of intelligence to this power: but it was reserved for Stahl to refer it entirely to the rational soul, which, he affirmed, not only originally formed the body, but is the sole cause of all its motions, not excepting digestion, assimilation, and secretion, in the constant excitement of which life consists. While he referred to this principle the actions by which health is established, he attributed to its irregularity the occurrence of disease; admitting however, to a very great extent, the operation of slighter causes, among which *plethora* held a favoured rank. To this state Stahl supposed the human frame was perpetually disposed, and that at particular periods of life this disposition manifested itself with great precision in different parts of the body. Hence arose, according to him, in infancy complaints of the head, during adolescence in the pulmonary structures, and in old age in the digestive organs. Fever he described as an autocratic effort of nature to conquer the morbid cause, and to expel it from the body; and all the symptoms, not excepting *rigor*, were only so many proofs of the *tonic* action which was thus excited. Congestions were supposed, in contradistinction to obstructions, to result from an afflux of the fluids occasioned by the same tonic power; when obstruction followed, or when the object of the congestion, i. e. *evacuation*, was not accomplished, inflammation took place; and the tendency of the violent actions which accompanied it, was to disperse the obstructed humour. If this end was not attained, the obstructed matter became vitiated, and pus was formed. Hypochondriasis, gout, melancholy, and almost all cachectic disorders, were attributed to a *diminution* of the tonic power of the vena portæ, and the consequent stoppage of the blood in it; while spasmodic diseases were thought to indicate an *excess* of the general tonic power of the system.

Rejecting the aids derivable from anatomical researches, of the use of which in medicine Stahl entertained a very mean opinion, he proceeded, in conformity to the general principles we have related, to the treatment of disease. It may very naturally be supposed that a theory which attributed so much to the salutary operations of nature, was not likely to lead to very active practice: accordingly we find that Stahl adopted, to a very great extent,

the Hippocratic mode of watching these healing operations, without interfering with them farther than to assist their weakness or moderate their excess: and, in fact, he and his followers, trusting principally to the operations of nature, zealously opposed the use of some of the most efficacious remedies, as opium, cinchona, and mercury; and were extremely reserved in the employment of bleeding, vomiting, &c. Notwithstanding, however, the hypothetical notions of Stahl, his inert practice, and his contempt for anatomical research, yet much praise is due to him for having directed the attention of pathologists to the phenomena of *vitality*, and showing the fallacy of the chemical hypotheses, a task for which he was pre-eminently qualified by his profound investigations in the science of chemistry.

Hoffman was a physician who obtained great celebrity at this period, less however on account of his superior mental faculties than for his extensive erudition, and the art he had of displaying it to advantage. He was educated under the mechanical sect of physicians; and it is rather remarkable, that Stahl, who had been taught the chemical doctrines, should have discarded entirely chemical illustrations of disease, while Hoffman, who had been taught by the mechanists, admitted the existence of acid cacoehymia, and even attempted to show how the union of this acid with blood produced neutral salts which were the cause of gout, calculi, rheumatism, and cutaneous diseases. Though engaged at one period of his life in controverting the opinions of Stahl, on the supposed ground of their atheistical tendency, yet the theory of Hoffman, as far as the vital or motive principle was concerned, scarcely differed from that of his enlightened colleague: for, though he applied to it the appellation of *nervous fluid*, or ether, and fixed its seat in the nervous system; yet, in attributing to it the faculties of mind, sense, and intelligence, he caused it to approach very nearly to the *anima*, or soul, of Stahl. Like Stahl, too, he allowed that morbid actions were frequently induced by a plethoric state of the system; and, in conformity likewise with the views of that author, he referred much to the obstructions of the humours, especially in the vena portæ. Fever and inflammation he supposed to arise from spasm, or constriction of the capillary vessels, particularly of the skin, an opinion which was illustrated and improved in after-times, and more fully developed in the famous theories of Cullen.

In the practical department of the art, however, Hoffman left Stahl far behind him. We have to observe in his treatment of inflammatory disorders great decision and correctness, and consequently a great degree of success. He abolished too, in a great measure, the sudorific plan of treatment which the humoral pathologists had practised to a very dangerous extent, and to which Stahl was particularly attached. To him likewise we are indebted for the use of the *Liquor anodynus*, an excellent and well-known article of the materia medica. He likewise showed the great use of bark in intermittent fevers, and of chalybeates in chronic disorders. Moreover he investigated, with great care, the composition of mineral waters, and taught the art of preparing them artificially. We ought not to forget to remark that, in the work of Hoffman, "*De Consensu patium nervosorum*," many valuable observations will be found, particularly those which regard the influence which various organs exert upon one another.

But the physician who obtained at this period the highest rank as a pathologist was Boerhaave. Educated by his father with a view to the ministry, he imbibed at an early age a knowledge of the learned languages; afterwards applying himself with assiduity to the study of mathematics, and then to the profound investigations of moral philosophy, he next proceeded to botany and natural history, by which he laid the foundation for a very extensive acquaintance with the science of medicine, which at length he adopted for his profession. See BOER-

HAAVE, vol. iii. Anatomy (of which his works betray great deficiency) was the only branch of his education which seems to have been neglected; which is nevertheless surprising, because he dissected for some time under Nuck, an anatomist of much repute. Boerhaave conceived that the theory of medicine must be the best which reconciled the opinions of all sects; and, accordingly, he laboured to unite the chemical doctrines of the day with the valuable observations derived from the other schools and from Hippocrates. Of the father of medicine he professed to be a great admirer, and affected to return to the good and ancient method of acquiring knowledge by observation and experiment; but unfortunately forgot his own rules, yielded to the influence of early studies and a love of theorising, and in many instances obscured the science his abilities had otherwise enabled him to adorn in a most eminent degree. However, the plausibility of Boerhaave's doctrines, the beauty of his style, and the graces of his delivery, gained for him an ascendancy which is almost unparalleled. We may form some idea of the importance attached to his labours when we read, that, on his beginning a course of lectures, the occurrence was deemed of so much consequence, that the whole city was illuminated. Boerhaave adopted a notion, of which his philosophical education should have taught him the absurdity; viz. the existence of an intermediate substance between matter and spirit, a principle which regulated or produced all the vital functions. He had taken this idea from an ancient dogma found in one of the writings attributed to Hippocrates; and his nephew, Kaan Boerhaave, followed up and illustrated this hypothesis with much spirit, and, unfortunately, with the admiration of his contemporaries, who adopted it almost universally, until the splendid discourses of Haller began to wean them from opinions so dissonant to the results of sound reasoning.

Boerhaave died in the year 1738; so that we have now fairly got into the eighteenth century, and have arrived at a period when physiology, long obscured by the misapplication of the natural sciences, at length began to be studied according to the dictates of sound reasoning and the results of experiment. The name of Haller (who studied under Boerhaave) stands in lofty pre-eminence among the cultivators of medical science during this century. Panegyric has been seldom more properly applied than to this distinguished author. His biographers have shown how assiduously, at the earliest periods of his life, his mind was bent on the acquisition of knowledge; and they have reported his varied, his extensive, accomplishments. His poem of the Alps shows how eminently he possessed sublimity of imagination and the harmony of numbers; and his researches in our own science manifest the profundity of his reasoning; while the admirable picture is closed by the relation of his earnest regard for the interests of morality and religion. In a word, Haller seems to have almost realized the account given of the gods, or inventors of medicine, who individually united the four grand sciences of poetry, legislature, physic, and divinity. See the article HALLER, vol. ix.

The irritability of the body was the point to the establishment of which a very large proportion of Haller's researches were directed; and in this principle he formed a ready solution of many phenomena which had puzzled his predecessors and given rise to much idle and fanciful speculation. We may be excused, however, from entering into the physiological discoveries of Haller, as we shall have occasion to treat of them somewhat largely in our article PHYSIOLOGY. It should be mentioned, however, that the *Elementa physiologiæ* of Haller is a work of the greatest merit, and which, notwithstanding the wonderful progress of physiology in our own time, may still be referred to, as containing an immense body of research arranged in a very beautiful manner. And this book would probably have still remained the text-book of every physiological school, had not the profound re-

searches of our countryman Hunter led mankind to detect its errors and deficiencies, and shown how much still remained to be done ere the fabric of this science could be considered as resting on a stable foundation.

It would appear that Haller was not an operating surgeon; for, in his *Bibliotheca Chirurgica*, vol. ii. he says, "Although I have practised surgery seventeen years, and exhibited the most difficult operations on the dead body, I have never ventured to apply a cutting instrument to a living subject, through a fear of giving too much pain."

Among the other physiologists who flourished during the early part of the eighteenth century, we may mention Porterfield, Whytt, and Borden. The two former were distinguished by their researches on muscular action and nervous influence; and the latter has the merit of having pointed out the importance of the cellular tissue, and of describing many properties belonging to it which his predecessors had overlooked.

We can scarcely draw a stronger contrast as to the different methods of acquiring knowledge than by mentioning the name of John Hunter immediately after that of Haller: the one possessing every advantage which collateral knowledge could procure, a man of the most perfect skill in languages, and profoundly erudite; the other ignorant of the most simple and elementary branches of education. Yet they stand each unrivalled in the annals of our art. The name of Hunter will frequently come before us when treating the sciences of physiology and zoology; but we must here pause to describe, in some measure, the speculation which he adopted on the subject of life, or vitality, because it has probably had much influence on pathological doctrines. Before the time of Hunter, many authors had remarked that a vital principle existed in the body independent of organization; but he first asserted, (to use the words of his own enlightened eulogist,) that "life actually constructed the very means by which it carried on its various processes; and that it could operate in semi-fluid, and even fluid, substances."

This specimen of hypothetical reasoning which Hunter has left us, forms the only exception to the unqualified admiration with which we are disposed to regard him. But certainly, this notion of a vital principle is very extravagant; and, in attributing to it some degree of intelligence (which he has done when treating of the absorbents,) he has rendered himself liable to be opposed by the same conclusive arguments which had long since refuted the notions of Stahl. The labours, however, of Hunter, by giving a more certain and fixed character to physiology, have caused that science to be used as the basis of medical practice and every modern system of nosology; and his extensive researches in comparative anatomy, opened a field of which the further cultivation has produced, and is still producing, great information in regard to the science of life, and, hence, to the science of medicine. The surgical operative improvements which Hunter made, were some new methods of treatment in rupture of the tendo achillis, and in the operations for hydrocele and fistula lacrymalis; and likewise in the mode of operating for popliteal aneurism, by taking up the femoral artery in the fore part of the thigh.

The publications for which John Hunter is most distinguished, are—his work on the Venereal Disease, 1786, and his Treatise on the Blood, Inflammation, and Gun-shot Wounds, not given to the public till after his death. Nor should we omit to notice the very numerous and important papers which he presented to the Royal Society, in rapid succession, especially between the years 1773 and 1783, chiefly relating to comparative anatomy and physiology. His fame, however, will principally rest upon his various discoveries in this branch of science; and it would be injustice to his character not to describe, as amply as our limits will admit, the Anatomical Museum, the formation of which may be regarded as having been the main object

+ vide our leaf

object of his life. In its plan it was absolutely unique, and the perfection to which he brought it rendered it the admiration of all who were capable of judging of its value. It embraced the grand design of exposing to view the gradations of nature, from the most simple state in which life is found to exist, to the most perfect and complete piece of animal mechanism, that of man. This collection of anatomical facts is arranged according to the functions they are intended to illustrate, the different parts of animal bodies intended for similar uses being brought together in series, so that the various links in the chain of perfection are readily followed, and clearly understood. This arrangement comprehends four great orders: the first, parts constructed for motion; second, parts essential to animals respecting their own internal economy and preservation; third, parts superadded for purposes connected with external objects; and, fourth, parts for the propagation of the species, and the maintenance of the young. The First Order exhibits the fluids of living bodies in a series, from the simple colourless sap of some vegetables to the coloured and coagulating blood; the muscles, from the straight simple muscle to the most complicated structure with elastic ligaments; the growth of bone, horn, shell, &c. and the varieties of joints. The Second Order comprehends the organs of digestion, beginning with the hydatid, which is itself a simple pouch, and passing to the polypus, the leech, and more complicated animals, including a series of stomachs, of intestinal canals, and of the glands connected with them, as livers, spleens, &c. After the organs of digestion follows the system of absorbing vessels, from the roots of plants up to the lacteals and lymphatics of different animals. The next step is to the heart, which, in the caterpillar, is a simple canal, and receives various additions as we ascend in the scale, until we find it a double heart in man and quadrupeds: this leads to the structure of arteries and veins. Then the lungs are shown in all their gradations, from the simple vascular lining of the egg-shell, which serves as lungs for the chicken, to those of the more perfect animals, including gills, &c. The windpipe and organs of voice are shown under their different forms. And, lastly, the kidneys are exhibited, which separate the superfluous fluids from the circulation. The Third Order takes up the brain from its simplest state in the leech, to the snail, insects, fish, &c. upwards; the varieties of all the organs of sense in the different tribes of living things; and, lastly, the external coverings of hair, feathers, scales, &c. the weapons of offence and defence, as spurs, hoofs, horns, stings, and electric organs. As an Appendix to this Order, some peculiar structures are added, such as the air-bladder in fish, &c. The Fourth Order includes all the variety of parts connected with the process of generation in plants and animals, from the polypus and coral to the perfect animals; those of females in the maiden and impregnated state, including the products of seeds, spawn, eggs, &c. the progress of incubation; the peculiarities of the fetus; and the various organs for the nourishment of the young. This sketch gives a very inadequate idea of the amazing number of objects, from every department of nature, which the collection comprised; but it contains, besides, a large series of whole animals, arranged according to their internal structure, many of them the rarest ever brought into this country; such as the camelopard, hippopotamus, &c. It comprehends, moreover, a series of skulls of different animals, and skeletons of almost every known genus; an immense number of calculi, urinary, biliary, and intestinal; a large collection of shells and insects; and a most complete assortment of extraneous fossils. By his will, Mr. Hunter directed that this Museum should be offered to the purchase of government; and, after some negotiation, it was bought for the public use for the sum of 15,000*l.* and given to the College of Surgeons, on condition of exposing it to public view on certain days in the week, and giving a set of annual lectures explanatory of

its contents. A large building for its reception has been completed in Portugal-street, connected with the College of Surgeons, in Lincoln's-Inn Square; and, in the spring of the year 1810, the first course of lectures was delivered by Mr. Home and Sir William Blizard.

One of the very first surgeons of the present day, Mr. Lawrence, in a Lecture at the College of Surgeons a few months ago, speaks of John Hunter in the following terms: "Mr. Hunter is the glory of England in the 18th century. In vigour and originality of genius, in comprehension and depth of thought, in unwearied industry, he has been surpassed by none. He was one of the men who gave a character to the age in which they live, whose names are associated to the great æras of science, and who do honour to the country which produces them. Occupied by a laborious profession, and defraying from its hard earnings the expenses of his multifarious inquiries, he accomplished what appears almost incredible. What might he not have done, had his time been devoted exclusively to his favourite pursuits, and had they been aided by that pecuniary assistance and fostering support, which the rulers of mankind so seldom and so unwillingly spare from their schemes of war and conquest? He surveyed anatomy and physiology with the eye of a philosopher; proceeding constantly, with the aid of dissection and experiment, to ascertain the structure of animals, and to determine the nature of their functions. There is scarcely a branch of physiology which he has not illustrated by some original researches, while he has examined each organ in every animal that he could procure. His Museum is arranged on this truly philosophical principle; a plan followed by Aristotle, and to be completed, I hope, by Cuvier." This last eminent person is mentioned by the same distinguished authority, as one who has suffered no corner of the wide field of zoology to escape his penetrating glance: "Equal (observes Mr. Lawrence) to Buffon in enlarged views and comprehensive grasp of mind, and much superior to him in patient research, minute observation, and learned inquiry, he presents a rare union of all the great requisites for promoting natural knowledge. He has been not less fortunate in his situation than in his qualifications; devoting his whole time to science, and surrounded by numerous able assistants, he could avail himself, to their full extent, of those liberal institutions for the advancement of natural knowledge, and that uniform encouragement of talent, for which science will ever be indebted to the late French government. Accordingly, his progress has been every-where marked by improvement and discovery."

Dr. William Hunter, the elder brother of John, was a very distinguished physician, anatomist, and accoucheur. We have already devoted two pretty long articles in our ninth volume to the HUNTERS. We need, therefore, only add, that to William the profession is indebted for the discovery of the *membrana decidua reflexa*; and to remind our readers how much we have availed ourselves of his splendid work, the *Anatomy of the Gravid Uterus*, in our articles ANATOMY and PARTURITION, vols. i. and xviii. His Museum, which is extremely valuable, though of a different nature from that of his brother, is now in the university of Glasgow, having been sent there by Dr. Baillie some years before the time mentioned in his uncle's will. See HUNTER, vol. ix. p. 481, 2.

Among the most distinguished anatomists of the 18th century, as enumerated by Haller in his *Bibliotheca*, we have the names of Morgagni, Winslow, Cheselden, &c. which were dated in about the first 30 years of that century, except Morgagni's work, *de Sedibus et Causis Morborum*, which he published at an advanced age. Under the title of the *perfect state* of anatomy, Haller reviews the works of Albinus, Senac, Monro, (the father and son,) Nicholls, Lieutaud, Ludwig, Leiberkuyn, Daubenton, Camper, Walther, Meckel, Zinn, Fontana, Wrisberg, Spalanzani, Hewson, Portal, Sabatier, Scarpa, Blumenbach, Troja, &c. whose writings extend to the time

On the electric organs of the torpedo and the gymnotus electricus; on certain
receptacles of air in birds, on the gallaroo trout; on the animal & vegetable
powers relating to heat; on the recovery of persons apparently choked;
on the free shunt; on the communication of small pox to the fetus in
utero; on an extraordinary pheasant; on the organ of hearing in fishes
on the effects of the catapaction of ovaria; on the species of the wolf, the
jackal and the dog; on the structure and economy of whales; on bees;
on inflamed veins; on the mode of conveying substances into the stomach
in palsy of the oesophagus; on the venereal disease and on Muscular
action in various croonian lectures read before the Royal Society
Shew. B. L. O.

time when he wrote, and indeed about twelve years after, since the two last of the 10 vols. of which that noble work consisted were published, in 1788, with additions, by the learned editors, to that time.

While supplying the deficiencies of Haller, and extending the enquiries to our own times, we shall be convinced of the impropriety of the title of one of his chapters just quoted, "the perfect state of anatomy," since anatomy and surgery, as well as pathology and physiology, have been rapidly improving ever since. This has arisen from the assistance of governments in the different countries. They being convinced that anatomy is one of the most necessary sciences, and the groundwork of the whole healing art, but particularly of surgery, in many great cities academies were instituted for the cultivation of practical anatomy; and schools were also established for the instruction of the theoretical and practical parts of surgery.

These improvements in surgery have been chiefly made in England, France, and Germany; and in all these countries a number of very eminent men have appeared.

The English surgeons, besides possessing an accurate knowledge of anatomy, and great abilities in the operative part of their profession, were the first who endeavoured to bring the art to its present simplicity. They directed also their attention, in a particular manner, to the diet of patients; the neglect of which had caused the unfortunate issue of many operations which had been dexterously performed.

Among the surgeons of later times, we may first mention the name of Sharp. He was a scholar of Cheselden, and one of the best surgeons of his day. He wrote a *Compendium of Surgical Operations*, 1746; and also a *Critical Inquiry into the State of Surgery*; both of which works are still in high estimation.

In the year 1719, Dr. Monro, after visiting the schools of London, Paris, and Leyden, where he was a pupil of the great Boerhaave, came to Edinburgh; and this may be considered as the date of the foundation of the Edinburgh medical school. He began by giving lectures on anatomy and surgery, the first which were delivered in Edinburgh; and in the year 1721 he was appointed professor of anatomy and surgery to the university. This eminent anatomist and surgeon, besides filling his chair with the greatest reputation, contributed to the advancement of our knowledge in many important parts of anatomy and surgery. His works, published by his son, besides his *Treatise on Osteology*, which is certainly the best description of the bones that has ever been given, will be found to contain many interesting and valuable observations on various surgical diseases.

Joseph Warner, surgeon of Guy's Hospital, in London, published his *Cases and Remarks in Surgery* in the year 1754, a work which contains many very important practical remarks. He afterwards published a very good work, containing a description of the human eye and its adjacent parts, in which he particularly rejects the fastening of the eye during the operation of cataract. He also published *An Account of the Testicles, their Common Coverings and Coats, &c.*

Percival Pott, surgeon of St. Bartholomew's Hospital, may be justly considered as one of the principal English surgeons of his time. He was not only a successful practitioner, but an industrious and excellent writer. The merits of Pott are indeed considerable. He threw much light on the doctrine of wounds of the head, by his accurate arrangement of the different kinds of injuries to which the head is subject. He also gives a good account of hydrocele and the other diseases of the testicle. For the operation of the fistula in ano, he made material improvements. He has given many useful hints on fractures and dislocations; and he was a great champion in favour of the operation for cataract by couching. He was the first person who described the chimney-sweeps cancer; and on hernia, polypus, and curvatures of the spine, he

has made many judicious pathological and practical observations.

Charles White, surgeon in Manchester, published an excellent practical work in the year 1770, in which he recommends amputation of the foot, a little above the ankle-joint, instead of under the knee, as had usually been practised. He also shows the effect of sawing off the ends of bones; and discusses several other interesting points in surgery. In the same year, Mr. Elfe, of St. Thomas's Hospital, published his treatise on the hydrocele, in which he recommends the use of caustic in the cure of that disease.

In the year 1770, Mr. Dease, of Dublin, wrote an excellent treatise on the wounds of the head. Mr. Bromfield, of St. George's Hospital, and Mr. Hill, surgeon at Dumfries, also distinguished themselves; Mr. Bromfield for his *Chirurgical Observations*, and Mr. Hill for his *Observations on Cancers*.

In the year 1778, Mr. Benjamin Bell published the first volume of his *System of Surgery*. The reputation of this work was soon such, that it was translated into the French and German languages; and it has since gone through several editions in these, and many in English. This work presented the most complete system of surgery which had ever appeared; and in every part of it there is displayed a talent for practical observation and clearness of thought which must render it ever a useful and valuable present to surgery. Like all such extensive works, it is not without faults, and the language in which it is written is in some places prolix and diffuse; but, notwithstanding its errors, it certainly must be considered as the most useful body of surgery that has yet appeared in this country.

We are aware that we have omitted the names of very many eminent English surgeons and anatomists; as Douglas, Cowper, Alanfon, Hawkins, Smellie, &c. &c. The details, however, of their respective inventions and discoveries, would exceed our limits; and, indeed, may very well be spared, for there is confessedly great difficulty in ascribing even anatomical facts to their right discoverer, much more the abstruse and obscure speculations of physiologists. Moreover, the same facts have been discovered by different persons, ignorant of the researches of each other, and each has been equally tenacious of his prior claim. Thus, the discovery of certain parts of the lymphatic system, was made by Dr. Wm. Hunter, and by Monro, jun. of Edinburgh, each unconscious of the other's labours. The publication of them aroused much controversy and litigation. Numerous instances might be adduced of a similar kind.

Periodical medical works were set on foot in Great Britain about this time. Upon the great utility of such publications, in diffusing knowledge far and wide, we need not enlarge after what has been said under the article *MAGAZINE*, vol. xiv. p. 90. The *Edinburgh Medical Essays* were first published in 1732, being eleven years antecedent to the appearance of the *Memoirs of the French Academy*.

Italy, during this period, lent some aid to the improvement of surgery, by the lectures of Molinelli, Brandani, and Moscati; while, in Holland, Albinus, Deventer, and Camper, by their discoveries and improvements, and still more by their free communication of them, endeavoured to remove the stigma which the charlatanism and secrecy observed by Ruysch, Roonhuyfen, and Raw, had thrown on the surgery of that country.

In Germany, and the north of Europe, flourished Heister, the fellow-student of Albinus, Blatner, Roederer, Stein, Bilguer, Acree, Brambilla, Theden, Richter, &c.

The reign of Louis XIV. has been called, by Richerand, the iron age of surgery in France. Yet the French, at that time, prided themselves on the almost exclusive possession of chirurgical practitioners. "Les progrès de la chirurgie," observes M. De Francheville, "furent si rapides

rapides et si celebres dans ce siècle, qu'on venait à Paris des bouts de l'Europe, pour toutes les cures, et pour toutes les opérations qui demandoient une dextérité non-commune. Non seulement il n'y avait guères d'excellens chirurgiens qu'en France; mais c'étoit dans ce seul pays qu'on fabriquoit parfaitement les instrumens nécessaires." It is somewhat singular however, that, amidst all this boasted possession of surgical knowledge, the fistula in ano should be a disease in which the French surgeons were fearful of operating, and which had often proved fatal beneath their attempts. Cardinal Richelieu fell a sacrifice to the unskilfulness with which the operation was performed; and, when the king entrusted himself to the care of M. Felix, his chief surgeon, so hazardous was this operation deemed, that all the hospitals were ransacked for those who had laboured under the same disease; and innumerable consultations were held with other surgeons of known reputation, to determine on the mode of operating that should appear least painful and dangerous. The churches also were perpetually crowded, and prayers perpetually offered up throughout the whole kingdom, to avert the fatal termination which was so generally apprehended. And, when this monarch was attacked by the disease to which he fell a victim, he became dissatisfied with his own physicians, and employed an empiric, who boasted of being able to cure him speedily, but under whose care he expired in a few days.

We have gone back to the 17th century to speak of the state of surgery under Louis XIV. as he died at the beginning of the 18th. Yet we cannot help attributing the great perfection the art acquired in the last century to the exertions of that powerful monarch. He founded hospitals and colleges, established professorships, which he required to be filled only by surgeons of acknowledged talent: he commanded bodies to be liberally supplied to the anatomists; and hence Paris became the medical and surgical school of the greatest celebrity on the continent.

Petit and Deault are the first and most conspicuous authors who come under our observation at this time. The eulogium on J. L. Petit, delivered in the Royal Academy of Surgery, of which he was one of the first and most distinguished members, represents him as blending the study of anatomy with his amusements when a boy; and ardently seeking every opportunity to increase his knowledge by observation. He had had experience enough to publish, at an early period of his life, his "*Traité sur les Maladies des Os*," Paris, 1705, 12mo. a work, which for a century was esteemed the best upon the subject. It may be noticed, that his success was most virulently opposed by the envious. It was not till after more than thirty years of academical labours and extensive practice, that he was unanimously elected chief of his associates. This acknowledged superiority was the more flattering, as J. L. Petit obtained it at a period when surgery was in a flourishing state in France, and where he held no place from which he could derive an influence foreign to his personal merit. While Mareschal, La Peyronie, and La Martiniere, assured him of the royal favour, Quesnay, Morand, and Louis, who corrected his writings, made him speak a language that does honour to the famous collection to which he contributed his observations (see *Mémoires et Prix de l'Académie Royale de Chirurgie*, 10 vols. 4to.) and in which, if we except some theoretical explanations, nothing has lost its value by age. In short, it will ever be considered as one of the most valuable collections of surgical knowledge. J. L. Petit was also the author of a "*Traité des Maladies Chirurgicales, et des Opérations qui leur conviennent*;" *Ouvrage posthume*; a production that will always stand high in the estimation of the judicious surgeon.

Of Défault we may remark, that he is highly celebrated for the exactness and method which he introduced into the study of anatomy; the ingenious apparatus which he invented for the treatment of fractures; a noble

ardour in his profession, which he knew how to infuse into all his pupils; and the boldness and simplicity of his modes of operating. His clinical lectures upon surgery were the first ever delivered. Indeed, such was his genius, that, when he practised only methods already understood, he did them with so much adroitness, that he rather appeared to be the inventor of them. He wrote the *Journal de Chirurgie*, 4 vols. 8vo. and left behind him *Œuvres Chirurgiques*, 3 vols. edited by Bichat. He likewise furnished many papers to the *Mémoires of the Academy of Surgery*, and was a distinguished member of the *Ecole de Santé* which succeeded it.

What tended principally to raise the reputation of French surgery to so high a pitch, was the union of individual labours in the Academy of Surgery just mentioned. This valuable institution, which gave our continental neighbours so great an advantage over us, was unfortunately suppressed at the time of the revolution; and every one interested in the improvement of science must deeply regret the discontinuance of a society, in which emulation and talents were so long united for the benefit of mankind. The various dissertations, published by the illustrious members of the Academy, will serve as a perpetual memorial of the spirit, ability, and success, with which the objects of the institution were pursued; and centuries hence, practitioners shall reap from the pages of its *Mémoires* the most valuable kind of surgical information. Indeed, the "*Mémoires et Prix de l'Académie Royale de Chirurgie*" is a work which is absolutely indispensable for every surgeon, and the various parts of which cannot be too often consulted. In it are preserved the labours of Le Dran, Garengot, De la Faye, Louis, Verdier, Foubert, Hevin, Pibrac, Fabre, Le Cat, Bordenave, Sabatier, Puzos, Levret, and several other practitioners, who, though less famous, have contributed by their exertions and knowledge to form this useful body of surgical facts. The preceding surgeons also distinguished themselves by other productions.

Le Dran published, 1. *Parallèle des différentes Manières de tirer la Pierre hors de la Vessie*, 12mo. 2. *Opérations de Chirurgie*, 2 vols. 12mo. 3. *Observations de Chirurgie*, 2 vols. 12mo. 4. *Traité des Plaies d'Armes à feu*, 12mo. 5. *Consultations de Chirurgie*, 12mo.

Garengot wrote: 1. *Traité des Instrumens de Chirurgie*, 2 vols. 12mo. 2. *Traité des Opérations de Chirurgie*, 3 vols. 12mo.

Fabre was the author of *Recherches sur l'Art de Guérir*, 8vo.

Le Cat wrote: *Recueil de Pièces sur l'Opération de la Taille*.

Sabatier published the *Médecine Opératoire*, 3 vols. 8vo. Puzos composed *Traité des Accouchemens*; Paris, 1759, 4to.

Levret wrote, 1. *Observations sur les Accouchemens laborieux*; Paris, 1747. 2. *Art des Accouchemens, démontré par les Principes de Physique*; Paris, 1761, 8vo. 3. *Essai sur l'Abus des Regles générales, &c.* Paris, 1766, 8vo. 4. *Observations sur la Cure radicale des Polypes*; Paris, 1749.

La Motte published: 1. *Traité complet des Accouchemens naturels, non-naturels, et contre Nature*. 2. *Traité complet de Chirurgie*.

Maitre-Jean was the author of *Traité des Maladies de l'Oeil*, 4to.

Goulard wrote: *Œuvres de Chirurgie*; Liege, 1763, 2 vols. 12mo.

Ravaton composed, *Le Chirurgien d'Armée*.

Pouteau: 1. *Mélanges de Chirurgie*, 8vo. 2. *Œuvres posthumes*, 3 vols. 8vo.

David, *Observations sur la Nécrose*; Paris, 1782, 8vo.

The Academy of Surgery, which was overthrown during the French revolution, had at first a very inferior substitute in the *Ecole de Santé*; but, since the restoration, has been succeeded by the *Ecole de Chirurgie*, (see *PARIS*, vol. xviii. p. 467.) which has brought forward

Boyer,

Boyer, Heritier, Dubois, Manoury, Lallemand, Richerand, Petit de Lyon, and, above all, Bichat.

To Bichat, the ingenious and enlightened Bichat, the world is indebted for the first truly philosophical view of the structure of the human body. The simple division of it into its component parts, which this great anatomist and philosopher has pointed out, must be considered as the ground-work of all future anatomical and pathological inquiries.

Bichat demonstrated, that most of the organs of our body are made up of a variety of elementary parts or textures; each of which, in whatever part of the body it is found, uniformly has the same physical properties, and presents the same morbid phenomena. These he considers as the *elementary parts*; which, by the diversity of their combinations, produce all the modifications of structure and functions exhibited in the different organs of animals. This method of considering organized bodies, accords with every phenomenon with which we are acquainted, and seems to arise from the essential nature of their constitution. We may trace this view of the structure of the body in the observations of many of the older anatomists; and particularly it may be considered as the basis of some of the most ingenious philosophical theories of the late ingenious Mr. John Hunter.

In order to fix the characters of the elementary textures, Bichat employed various modes of inquiry. He performed numerous experiments on living animals; persevered in tedious and minute dissections; employed chemical re-agents to supply the place of the knife; and examined with minuteness all the varieties of morbid structure. Having by these means accomplished his object in tracing the character of each separate texture, he proceeded next to investigate their combinations as they are found in the different organs.

The effects of this mode of investigating the structure of the human body when diseased, must be at once obvious. We learn from it, that diseases at their commencement are generally confined to one texture of an organ; the other textures of which the organ is composed remaining sound. There is no organ of the body from which this important truth may not be deduced. It may be readily illustrated from considering the diseases of the mucous, serous, and muscular, textures, which compose the stomach and alimentary canal; of the cellular texture of the lungs; of the mucous membrane of the bronchi, the serous one of the pleura, and many others.

But diseases are not only confined to one individual texture of any organ, as in the cases just mentioned; the symptoms and morbid changes are likewise uniformly the same in textures of a similar structure, in whatever parts of the body these textures may happen to be found. Thus the serous membranes which invest the lungs, the brain, the heart, the abdominal viscera, have one common character when affected with any specific disease; so also have the mucous membranes, whether we trace them in the mouth, the nose, the vagina, the urethra, or covering the eye-ball; and the same may be observed of every individual texture which enters into the composition of our bodies.

Besides the symptoms and morbid changes which are common to all textures whose structure is similar in the natural state, there are others which are determined from the particular functions of the organ in which the diseased texture exists. For example, when any of the serous membranes are inflamed, the nature of the pain, the degree of fever, and the duration of the symptoms, are the same, in whichever one it may have taken place. But to these symptoms are added, cough, difficulty of breathing, &c. when it happens to be connected with the organs of respiration, as in the case of pleuritis; costiveness, strangury, delirium, loss of vision, when the intestines, the bladder, the brain, or the eye, are involved in the disease.

This view of the subject naturally suggests a corresponding division of the *symptoms*. The first class are general, and characterise a whole genus of textures; the second are in a manner accessory, and depend upon the relative situation or the particular functions of the organ into the composition of which the affected texture enters. But here we must set bounds to this theory. The history and progress of diseases show, that we ought not to confine our observations within such narrow limits. The principles which have been stated, indeed, account admirably well for the propagation of some affections; and for some of the sympathies which subsist between different parts of the body; but there are other disorders which advance in a very different manner. In some diseases which are termed chronic, for example, the whole structure of an organ becomes gradually altered, although the primary affection was confined to one of its component textures. This is often to be observed in cancer, scrofula, lues venerea, &c. These general observations, however, will be sufficient to give an outline of the principles of a pathological system founded on the basis of anatomical knowledge; but the details of which are reserved for another place.

With regard to the *surgery* of the present day, we may remark, that our labours have of late been chiefly directed, by means of physiology and pathology, to the *treatment* of surgical cases; and, though in that respect we may be allowed to stand far before our ancestors, yet even in simple operations we are not without improvement. The bold and successful operations of Larrey will testify this, as well as the grand operations for aneurisms performed by Abernethy, Lawrence, Astley Cooper, and others of our English surgeons, whose names however we forbear to mention, convinced of our inability to do justice to the merits of all, and unwilling to appear invidious by the exclusion of any.

We now hasten to the consideration of those pathological theories, which, perhaps more than any other branch of medicine, form the criteria of medical practice.

The medical theorists, then, of the 18th century, were chiefly Cullen, Brown, and Darwin. If we were inclined to draw comparisons in regard to merit, the first of these physicians would deserve our greatest encomium; for he observed nature with acuteness, and was consistent and rational in his treatment of disease, which cannot be accorded to either of the latter. He likewise made an arrangement of diseases which had great merit, and which nothing but the increase of physiological knowledge, and its successful application to pathology, that has taken place in our time, can warrant us in departing from, and which indeed we promised to adopt. See vol. xvii. p. 245.

Cullen's pathological doctrines were a modification of the theory of Hoffman. From that author he took up the doctrines of spasm and debility, and deduced from them all the phenomena of febrile disorders; and he endeavoured to confirm his theory by proofs drawn from the laws of the nervous system, and from the consideration of the remote causes of the diseases in question. Rheumatism was referred by him to a spasm of the muscular fibres, arising from an increased afflux of blood; but gout he conceived to originate in atony, especially in atony of the digestive organs. In these latter diseases, he rejected the idea of a peculiar morbid matter; yet in his explanations of certain other complaints, as, for instance, of scrofula, he had recourse to the supposition of an acrimony of the fluids. He laid much stress on the efforts of the *vis medicatrix nature*, advocated the hypothesis of a nervous fluid and vital principle, and ascribed to the brain a peculiar faculty, by which it was enabled to excite the muscles to action, independently of the mind, and to which he gave the name of *irritability of the sensorium*. Cullen seems to have been much in the same situation with Boerhaave as to anatomical and physiological

physiological learning, of which many of his speculations betray a sad deficiency.

In regard to *fever*, Dr. Cullen's theory was that the first change induced in the animal system by the operation of the exciting causes of fever is, "diminution of the energy of the brain." The powers of the body and the mind, the functions of sensation and motion, respiration, circulation, and secretion, all fail, or are diminished in the general debility; but, after a certain time, a morbid increase of some of these functions, especially of the circulation, takes place, with an augmentation of the heat. The three states of debility, of cold, and of heat, which regularly succeed each other in fever, in the order just mentioned, are presumed to exist in the relation of cause and effect; the first state being the result of the sedative or debilitating influence of contagion, marasmodia, and cold, which are the exciting causes. Dr. Cullen acknowledges his inability to explain satisfactorily, how the debility produces all the phenomena of the cold stage, especially the *spasmodic* constriction of the extreme arterial vessels, which is inferred from the suspension of the secretions, and the shrinking of parts, in the cold stage, as well as from the continuance of this suspension in the hot stage, after the action of the heart and large arteries is increased. Were the constriction of the cold stage merely the result of the weakened action of the heart, it is supposed, that, on the return of its ordinary or increased action, the constriction would be removed, and the secretions restored. Here Dr. Cullen resorts to "the *vis medicatrix naturæ*," so famous in the schools of physic; i. e. the innate preserving power of the constitution, which has been appealed to for the solution of difficulties by all medical theorists, from Hippocrates downwards. This "spasm of the extreme vessels," then, is considered as "a part of the operation of the *vis medicatrix naturæ*;" at the same time, Dr. Cullen is of opinion that, during the whole course of fever, there is an atony existing in the extreme vessels, depending on the diminished energy of the brain, and that the relaxation of the spasm requires the restoration of the tone and action of these. To this atony in the vessels of the skin, he attributes the loss of appetite, nausea, and vomiting, the stomach being affected by sympathy. The spasm induced in the extreme vessels throws a load of blood upon the central parts of the circulating system, which proves a source of irritation to the heart and arteries, and excites them to a greater action, which continues till the spasm is relaxed or overcome. The hypothesis is thus briefly recapitulated: "Upon the whole, our doctrine of fever is explicitly this. The remote causes are certain sedative powers applied to the nervous system, which, diminishing the energy of the brain, thereby produce a debility in the whole of the functions, and particularly in the action of the extreme vessels. Such, however, is, at the same time, the nature of the animal economy, that this debility proves an indirect stimulus to the sanguiferous system; whence, by the intervention of the cold stage, and spasm connected with it, the action of the heart and large arteries is increased, and continues so till it has had the effect of restoring the energy of the brain, of extending this energy to the extreme vessels, of restoring therefore their action, and thereby especially removing the spasm affecting them; upon the removing of which, the excretion of sweat, and other marks of the relaxation of excretories, take place." Cullen's First Lines, § 46.

To this theory it has been objected, firstly, that it is founded, as far as regards the *vis medicatrix naturæ*, on the gratuitous assumption that a principle exists of which we have sensible evidence; secondly, that, to take the cold stage as the proximate cause of the after-phenomena of fever, is dissonant with evident fact; for the hot stage of fever often comes on apparently from external causes, and unaccompanied by the cold stage; and thirdly, that, with regard to spasm of the external vessels, such an oc-

currence affords no explanation of febrile phenomena; and indeed it seems quite absurd to suppose that the hot stage and the cold stage can by any means be consequences of the same action; and that, so far from the capillaries being contracted, we have pretty clear evidence that they are extremely distended with blood during all febrile diseases in which the skin is affected.

In a passage of his "Institutions of Physiology," Cullen speaks of a state of *excitement*, or *collapse*, of the brain and nervous system, on which he supposes the strength or debility of the other parts of the body to depend; and in his other writings, he is constantly labouring to prove in what manner these conditions may be occasioned by the agency of various causes. Brown, seizing upon this idea, set about the formation of a new theory, according to which all the actions of life were to be referred to the *excitement* of the body by *stimuli*, and all diseases reduced to the two general heads of *direct* and *indirect* debility, or debility arising from a deficiency, or a previous excess, of excitement; or in other words into *sthenic* and *asthenic* disorders.

The Brunonian system might very well be compared with the Methodic, its distinguishing features being the referring of all diseases to two opposite conditions of the constitution, *sthenia* and *asthenia*, or strength and debility, which might with almost equal propriety have been called *strictum* and *laxum*, (see p. 11.) and the consequent exclusion of all particular investigation of the minute distinctions in the phenomena of diseases which it encouraged.

This sweeping arrangement was, however, much lauded in many parts of the continent, and gained a very large proportion of advocates in our country, among those who had not sufficient knowledge of nature to detect its fallacy. The most general of Brown's principles are thus explained.

1. To every animated being is allotted a certain portion only of the quality or principle on which the phenomena of life depend. This principle is denominated *excitability*.

2. The excitability varies in different animals, and in the same animal at different times. As it is more intense, the animal is more vivacious or more susceptible of the action of exciting powers.

3. Exciting powers may be referred to two classes. 1. External; as heat, food, wine, poisons, contagions, the blood, secreted fluids, and air. 2. Internal; as the functions of the body itself, muscular exertion, thinking, emotion, and passion.

4. Life is a forced state; if the exciting powers are withdrawn, death ensues as certainly as when the excitability is gone.

5. The excitement may be too great, too small, or in just measure.

6. By too great excitement, weakness is induced, because the excitability becomes defective; this is *indirect debility*: when the exciting powers of stimulants are withheld, weakness is induced; and this is *direct debility*. Here the excitability is in excess.

7. Every power that acts on the living frame is stimulant, or produces excitement by expending excitability. Thus, although a person accustomed to animal food may grow weak if he lives upon vegetables, still the vegetable diet can only be considered as producing an effect the same in kind with animal, though inferior in degree. Whatever powers, therefore, we imagine, and however they vary from such as are habitually applied to produce due excitement, they can only weaken the system by urging it into too much motion, or suffering it to sink into languor.

8. Excitability is seated in the medullary portion of the nerves, and in the muscles. As soon as it is anywhere affected, it is immediately affected every-where; nor is the excitement ever increased in a part, while it is generally diminished in the system; in other words, different parts can never be in opposite states of excitement.

We will not detain our readers by detailing all the numerous controversies in which this theory has engaged the medical world, nor by repeating the various arguments which opposed its adoption among the more enlightened of our own physicians: for an hypothesis which fails to explain all the phenomena of disease cannot be considered worthy of our notice; and how could it be supposed that Brown, who paid little attention to the minute symptoms of disease, was capable of generalizing facts so various and anomalous? In no instance does the application of these principles form so much a subject for regret as in regard to the treatment of fever practised by the followers of Brown. It may be said, without exaggeration, to have immolated millions of our fellow-creatures. It inculcated methods of treatment the most opposite to those indicated by nature and common sense. Let the statistical reports of mortality in every climate testify the truth of this painful assertion. To stimulate in inflammatory disorders is a mean so repugnant to the feelings of the patient, or the advice of every practical author, from the time of Hippocrates downwards, that we are astonished at the extensive prevalence of so absurd a practice. We should remark, however, that the more enlightened of Brown's followers modified his doctrines considerably, and in their practice often departed essentially from his dogmas. In attempting to explain the phenomena of fever according to the doctrine of direct and indirect debility, Brown has the following expressions: "The distinctions that physicians have made about the differences of fevers are all without foundation; they are all the same, with no other difference but in degree; and, unless in that respect, they do not differ from other diseases of the same form." *Elements of Medicine*, § 662. note *m*. He does not, however, attempt to explain the manner in which the various succession of symptoms results from the state of debility, or how the various modifications of the pyrexia are to be accounted for upon this principle. The only approximation to such an explanation, is merely an enumeration of the leading changes in the symptoms after the manner of Cullen, but less explicit than the one given by that author. We are told, that "the debility during the cold stage is the greatest; that of the hot less; and that of the sweating stage, which ends in health for the time, is the least of all. Hence, in a mild degree of the disease, as cold is the most hurtful power, its effect is gradually taken off by the agreeable heat of the bed or of the sun, and the strength thereby gradually drawn forth. The heart and arteries, gradually excited by the heat, acquire vigour, and, at last, having their perspiratory terminations excited by the same stimulus, the most hurtful symptom is thereby removed, the hot fit produced, and afterwards the same process carried on to the breaking out of sweat." § 666. We are farther told, that "the cause of all these diseases, (*viz.* fevers, from the simple and intermittent to the gaol-fever and the plague,) is the same with that of diseases not febrile, to wit, debility; differing only in this, that it is the greatest debility compatible with life, and not long compatible with it." § 670.

Such is the vague and inexplicit theory which divided the medical world, which excited so much interest in those who espoused or opposed it, and inspired such a degree of enthusiasm in the debates and writings especially of the pupils of the seminary which gave it birth, that it not unfrequently burst forth with all the violence of religious phrenzy. This indeed is little to be wondered at, when we consider that half-educated young men, as is the case with the great proportion of medical students, unaccustomed to patient investigation, and fond of novelty, are the most apt to embrace such speculations as could be supported and defended by ingenious and subtle reasonings rather than by accurate and extensive observation. It was admirably well calculated to flatter the vanity of the superficial, and to abridge the labours of those disposed to be idle, since it was abundantly more easy to

descant upon the sthenic and asthenic forms of diseases, and the excess and deficiency of excitement, than to describe the distribution of the blood-vessels, or to trace the course of the nerves. The knowledge of anatomy and physiology was to a Brunonian perfectly useless; and the laborious toil requisite for the acquirement of these branches of study might well be spared him, since the structure of the human frame and the functions of its various organs were by no means necessary considerations, either in his estimation of the causes of diseases or of the means requisite for their removal. The beautiful simplicity of the system, accordingly, recommended it chiefly to those who were most deficient in that solid knowledge, which can alone form the basis of a successful cultivation of medical science; whilst its fallacy was too evident to those who had opportunities of witnessing its want of accordance with the natural operations of health and the phenomena of diseases.

It is, however, fully admitted, that Dr. Brown possessed great vigour of mind, and seems to have been capable of considerable application. His talents, had they been directed to more practical and more useful objects, would have probably raised him to eminent distinction, and rendered him a valuable member of society. The style of his *Elementa Medicinæ* is harsh and unpolished, and his meaning is often dark and ambiguous. But perhaps this want of perspicuity is as much owing to the subjects which he treated, the principles of which are far from being settled, as to the obscurity of his expression. He attempted an unbeaten path; it is not wonderful that he was often bewildered and lost.

A French physiologist and pathologist of the present day, Dr. Broussais, (*Examen des Doctrines Médicales*, 1821.) has bestowed about a hundred pages on a review of the Brunonian system; but at length he happily comes to the conclusion, at which all the rest of the medical world had arrived long since, "That the classification of diseases by Brown, into sthenic and asthenic, general and local, is quite arbitrary." He then enters upon the consideration of what he calls the Brownism of the Italian school. He first shows how readily the Italian physicians adopted the system of the Scotch reformer in the first instance; and, next, how they subsequently modified it, by various interpolations of their own, so as to create a new doctrine, to which the name of *contra-stimulant* has been given. According to this system, of which Rasori was the founder, there exist but three classes of diseases: 1st, those arising from excess of excitement; 2dly, those from want of due excitement; and 3dly, those resulting from local irritation, or disturbance of the vital actions of the part, differing both from inflammatory excitement and from debility. The two former are, respectively, the sthenic and asthenic maladies of the older schools. The latter requires a little explanation. According to Guani, the founder of this point of doctrine, the animal body is endowed with a property, inherent with its organization, by which it either assimilates to itself those substances brought into contact with it, or enters into a reaction for the purpose of rejecting them. All those substances which it appropriates to itself, produce what is termed animal excitement which is the agency of the assimilative property; whilst those which are not assimilable produce an action called *irritation*, which is a sort of disturbance, tumult, or orgasm, of the part, and which may extend from the part where the irritating cause is applied more or less generally over the system. This state, he argues, differs from the two former, because it is not relieved by either stimulants or sedatives. It obstinately continues as long as the cause of it exists; but, when the cause is removed, the effect instantly ceases, and it is never productive of real excitement, but soon, if it persists, induces debility.

Guani appears to consider that animal excitement properly, (by which he means exaltation of the vital actions without absolute change of their qualities,) only arises

from the local application of substances really assimilable, or from the presence of such in the system generally.

This doctrine of irritation was adopted by Giannini, and applied by him to the explanation of the phenomena of fever arising from contagion. The virus, he says, on being admitted into the system, in proportion as it is diffused and applied to different parts of the body, causes an irritation, which is improperly called *excitement*, or the effects of a *stimulant*. This irritation extending throughout the system, because the irritating matter is thus diffused, carries every-where a *local* cause of disease, and thus produces a malady that is "universally local," (*una malattia universalmente locale*;) but which does not constitute the *sthenic diathesis* of the schools. This fever is only the *tumulus toto corpore diffusus* of Brown; and is similar to the affection arising from the irritation of a stone in the bladder, or the fever arising from burns, severe surgical operations, &c. so well treated by Dumas.

Guanì, Bondoli, and Rubini, considered this state of irritation as a particular diathesis, and proposed what they imagined to be the causes of its existence and progress. Professor Tommassini also adopted the elementary principles of the same doctrine, but modified the propositions the physicians already named had made respecting its laws. He believes that irritants may at length give rise to real inflammation. The following are the general axioms he endeavours to establish.

1st, There exists an order of substances (as well as a partial condition of the animal structure, which relatively to the rest of the organization is an extraneous body) which, on making an impression on the animal economy, produce an action different from those termed *stimulant*, and *sedative*, or more properly *contra-stimulant*; and which is, properly speaking, *irritation*.

2dly, Some substances are *naturally* and *primitively* irritative, but which may *secondarily* become stimulants where they give rise to phlogosis; or they may become contra-stimulants (*sedatives*) when they produce pain or coldness, or distressing nausea; as pain, coldness, and nausea, themselves, act as contra-stimulants. Others are irritants by their quantity or concentration, or the manner of applying them, which induce either mechanical distension, or chemical decomposition, *accidentally*, and may by their nature appertain to one or the other of the two classes of dynamics.

3dly, The state they produce may be distinguished from all other states by the following characters: 1. by its incurability by means either of stimulants or contra-stimulants: 2. by the obstinacy of its duration in spite of all attempts to remove it, as long as the cause is present and active: 3. by the readiness, and as it were instantaneousness, of its cessation, as soon as the cause is destroyed: 4. by the type of the disease, which is manifestly local, even where the disturbance by sympathetic consent is universally dispersed.

4thly, Irritating substances may be either chemical agents, which enter the organization, or mechanical agents, which torment it, or a disordered state of a living part, which becomes a centre of irritation with respect to the whole system.

5thly, Inassimilability, heterogeneity, and inaffinity, cannot be the essential and diagnostic characters of irritants; because those characters do not appertain exclusively to them; nor, perhaps, to them universally.

6thly, In the present state of our knowledge, we are, then, constrained to define an irritant *à posteriori*, that which produces the train of morbid phenomena described under the name of the *irritative tumult*.

7thly, Irritation very often terminates by inducing phlogosis in the centre of its own action, and then it enters into the class of diathetic (inflammatory) diseases, preserving nevertheless, not unfrequently, the character of irritation.

1. The diseases of the first class, those consisting in excessive excitement, may then arise from all irritating and

exciting causes, whether contagious virus, mechanical or chemical injury, or excess of the natural excitants of the economy. These produce, in the first instance, local effects of the nature above indicated, which effects are at length diffused over the system to a greater or less extent, according to the violence of the cause, and the constitutional disposition of the patient. This inflammatory excitement is of the same nature, from whatever cause it arises, and in whatever part it may be seated. It is of importance to remark, too, that local excitement produces only excitement as far as its influence extends, and not debility of the rest of the system by any concentration of the vital actions, as is taught in some other schools. Inflammation may occur, also, in an intense degree, in any certain organ, whilst the rest of the system is in a state of the utmost debility; and it is, indeed, more readily excited in a state of weakness than in vigour, because the animal fibre is then more susceptible of the influence of stimulants. Inflammation is, however, always originally of a *sthenic* character; and it preserves this as long as it exists, even in the midst of the most desolating privation of vital power.

All fevers, acute and chronic, whether arising from the impression of cold, excess of the natural excitants of the body, animal contagion, or marsh-effluvia; all acute and chronic local inflammations, cutaneous ulcerative diseases, and phthisis; take their place in the first class. The general causes of this class of diseases have already been designated as those of essentially excitant or irritating qualities, but, in addition to those should be mentioned, some others which, under circumstances, are contra-stimulants. Thus, pain, to a certain degree, is a sedative; but it becomes an excitant, when intense; and many substances, which are contra-stimulant in certain quantities, become either excitants or irritants when given in larger quantities; this is the case with the tartarized antimony, belladonna, digitalis, &c.

2. The second class of maladies are of the nature which the doctrines of Brown would term *direct debility*, or that depending on want of due excitement. The doctrine under consideration does not admit the existence of such as he termed diseases of *indirect debility*, or exhaustion from previous excess of excitement. The effect of stimulants is considered to be constantly and solely excitement.

3. The character of the diseases of the third class was indicated when the nature of irritation was particularly considered.

This doctrine not only opposes the most favourite dogmas of the Brunonians, that of the existence of what they term *indirect debility*; it also attacks their principle of the essentially stimulating quality of every substance making an impression on the animal body. It teaches, 1st, That many substances act on the animal fibre in a mode diametrically opposite to the stimulant agency, whence result the effects which Brown attributed only to the negative action, or want of action, of different substances; or to the diminution of the natural excitants of the system. 2dly, That we may destroy, by the administration of these substances, the effects of excessive stimulants, and that without these substances necessarily producing any evacuation; and that we may, by frequent repetition of their use, produce diseases which are not susceptible of cure by the intervention of stimulants. 3dly, That contra-stimulants, such as blood-letting and purgatives, offer the means of cure for all maladies which result from excess of stimulation; and that, by the same analogy, the effects resulting from the abuse of contra-stimulants are combated with efficacy by stimulants, such as wine, aromatics, &c. 4thly, That the animal fibre supports the agency of stimulants or contra-stimulants in a direct ratio, respectively, to the degree of intensity of the diathesis of excitement or of debility. 5thly, That we may discover the degree of the diathesis rather by the aptitude to support the agency of the one

or the other of those classes of substances, than by the apparent symptoms of the malady.

This part of the new doctrine is not, however, so extensively adopted in Italy as the former. Many reflective physicians still maintain the opinions of Brown, and cannot be induced to believe that tartar emetic, digitalis, and the like, can directly depress vital action in the part to which they are applied.

Connected with this, and bearing some resemblance to it, is the system of Broussais himself, of which the following is an outline. 1. That the exaggeration of the vital actions in one tissue, which subsequently re-acts on others, constitutes the far greater proportion of diseases. 2. That all the tissues are susceptible of experiencing this modification, but certain ones are more exposed to it than others. 3. That those in which it is ordinarily developed, are the mucous tissues, because they are the organs of relation, (that is to say, organs which receive impressions, and which besides develop other actions by the influence they exert on the nervous centres,) and because they are all sanguineous and secretory organs. 4. That these tissues, being formed of capillaries and nervous substance, have the irritation they experience participated both by vessels and nerves. 5. That *irritation* being established in a tissue, calls the fluid to it; and that it is on this phenomenon that all the secretions, all the vital excretions, and, in a word, the actions of all the organs, depend. 6. That these irritations, with the solicitation of the fluids, being carried to a certain degree by the influence of certain causes, constitute states of disease. 7. That, whilst we do not distinguish in the economy, the four phenomena of inflammation (*tumor, dolor, rubor, and calor*), we should not give this name to the irritations which may be manifested. 8. That, in certain subjects, they are hardly ever raised to the degree which merits the name of *inflammation*; but that they then constitute, in some cases, the neuroses of authors; in others, organic affections. 9. That, in some persons, these irritations, confined for a long time to a certain degree, suddenly become exalted, and pass to the state of *phlegmasia*; that is to say, we then observe exaggeration of the action of the red capillaries, an extraordinary afflux of blood, with augmentation of heat, pain, &c. 10. That, in others, this exaltation takes place suddenly. 11. That, when then these exaggerations of the actions of organs have for the result, not the solicitation of blood, with heat, &c. but the accumulation of colourless fluids, and the predominance of the vessels which contain them, we then see the phenomena of irritation in a degree inferior to true phlegmasia, and to which, for this reason, the name of *sub-inflammation* may be given. 12. That neurosis, inflammation, and sub-inflammation, constitute the three varieties of irritation which furnish the principal and most important division in pathology: that is to say, *neurosis*, when the irritation is confined to extraordinary action, without increase of heat or imminent danger of disorganization; *inflammation*, when heat, with injection of blood, and imminent danger of disorganization, exist; *sub-inflammation*, when the irritation accumulates in the part only lymphatic fluids.

These are the morbid phenomena of *irritation* in the part where it originates. But, in addition to these, it should be considered, 1. That, as soon as the organic action is exaggerated in a part, it is transmitted to other organs by the nervous cords, (which should be distinguished from the nervous substance in the state of expansion, or in the pulpy state, as it exists in the organs of sense, and in the brain.) 2. That this transmission of the exaggeration of local organic action is a sympathy. 3. That it takes place, in the state of disease, according to the same laws, and by the same means, as in the state of health. 4. That the irritation, sympathetically developed in an organ secondarily affected, is of the same nature as the primitive irritation.

This is the mode in which M. Broussais has himself

stated the principles of his pathology of inflammatory diseases; and he has shown that, when fully developed, they will involve the far greater part of the maladies to which human beings are liable: but to trace these extensions of them does not come within the plan of this section. It is, however, necessary to advance so much respecting this doctrine, since it is becoming daily more extensively adopted in France, and has already obtained the consent and support of a great proportion of the more reflective part of the physicians of that nation.

An union of the reasoning and imaginative faculties has seldom been possessed by an individual with any advantage to the interests of philosophy. Of the truth of this proposition we have a melancholy example in the writings of Darwin. The figurative expressions and brilliant diction which so much adorned his poems, being applied to a stricter science, have equally obscured and tarnished his compositions.

We observe in the medical speculations of this author a near approach to some of the Brunonian tenets. Educated, however, in a superior manner, endued with better taste, and more minute in his observance of nature, Darwin saw that Brown's two general principles were inadequate to explain many forms of disease; and he therefore added a third. Two general laws of the animal economy are stated by Darwin, as well as by Brown: 1. That all excitement or action of the living organs and functions occasions a diminution or exhaustion of their power, (*excitability* in the language of the latter, *sensorial power* in that of the former,) according to the degree of excitement. 2. That rest, inactivity, or the abstraction of the usual stimuli, render those organs more susceptible of the action of the stimuli subsequently applied. Thus, when a small part of the capillary vessels of the skin are exposed for a short time to a cold medium, as, when the hands are immersed in iced water for a minute, these capillaries become torpid or quiescent, owing to the abstraction of the stimulus of heat. The skin then becomes pale, because no blood passes through the external capillaries, and appears shrunk, because their sides are collapsed from inactivity, not contracted by spasm; the roots of the hair are left prominent from the receding or subsiding of the skin around them; and the pain of coldness is produced. But in this situation, if the usual degree of warmth be applied, these vessels regain their activity; and, having now become more irritable from an accumulation of the sensorial power during their quiescence, a greater action of them follows, with an increased glow of the skin, and another kind of pain, which is called the hot-ache, ensues.

Thus far the two theories nearly accord; but beyond this point the Brunonian doctrine leaves us to a general statement of debility, altogether inadequate to account for the various forms and phenomena of fever. But Dr. Darwin appeals to other established facts in the animal economy, upon which these varieties appear to depend. From these he deduces a *third* general law; namely, That the functions of different parts of the system are so far catenated, or associated with each other, as it were in circles, either from direct connexion in structure, from the habit of acting together, or, more frequently, from causes at present inscrutable, that an increase or decrease of the action of one organ is followed or accompanied by an increase or decrease of the action of another; sometimes by a similar change, that is, increase followed by increase of activity, or decrease by decrease; but occasionally by the contrary change, that is, increase followed by decrease of activity, and *vice versa* in the associated parts. The former of these is termed a *direct sympathy*; the latter a *reverse sympathy*.

The instances of sympathy between different parts of the animal frame are very numerous; as, between the stomach and brain, the stomach and skin, the stomach and heart, the brain and heart, the skin and lungs, the uterus and mammæ, &c. And this, which occasioned him to

to call his system "the sympathetic theory," is the most important part of that theory; for the catenation, or association, which takes place between various functions when disordered, had, before his time, been very slightly touched on. A partial view of one circumstance of sympathy had made Cullen attribute too much to the state of the *skin* in fever; and insulated facts of the same nature had impressed almost every pathological system with error. Darwin embraced then the whole range of these associated actions, and formed the design of founding a system of pathology and therapeutics on the contemplation of all the laws of animated nature. And hence this may be considered as the first system constructed in exact conformity with physiology. Of this latter subject, Darwin, however, knew little; and hence the failure of the superstructure which he raised on it. Yet the conception was grand, and has been acted upon by all pathologists since his time.

The three laws or principles of action in the animal economy, which we have mentioned before, viz. 1. The exhaustion or diminution of the sensorial powers by exertion; 2. The recovery or accumulation of the same powers, during quiescence, or impaired action; and 3. The direct and reverse association of parts, by which the actions of one part give rise to actions in others; are the grounds of Dr. Darwin's explanation of the phenomena of fevers. He supposes that the cold stage accrues in consequence of the torpor of the capillary vessels, from the abstraction of the stimulus of heat, or other causes; the hot stage, in consequence of the renovated activity of the capillaries, from the accumulation of sensorial power during that torpor. Dr. Darwin, however, remarks, that this renovated activity of the capillaries is not owing to the renewed action of the heart, which forces them open by the mechanical impulse of blood; that the action of the capillaries often recommences sooner than the action of the heart, these vessels having a greater mobility than the heart and large arteries, as appears in the sudden blush of shame; and that, in low fevers, the capillaries acquire increased strength, as is evinced by the flush and heat of the skin, while the pulsations of the heart and arteries remain feeble. Hence simple fever is of two kinds; in one the pulse is strong, in the other weak: in the fever with strong pulse, not only the cutaneous capillaries, but also the heart and arteries, readily acquire a greater activity by the accumulation of sensorial power during the torpid state, which last is farther increased by direct sympathy with the increased activity of the capillaries; this happens in strong constitutions, and is often seen in vernal intermittents: in the fever with weak pulse, on the contrary, the heart and arteries do not acquire much increase of sensorial power, but continue in some degree in their state of torpor, while the orgasm of the capillaries is produced; whence there is a hot fit, with feeble pulse.

But, when the sympathies of other parts of the system are called into action, together with this torpor and orgasm of the cutaneous vessels, and of the heart and large arteries, the fever-fit becomes more complicated and dangerous. And again, when the torpor commences, from the operation of other exciting causes of fever in other organs of the body, and extends, with the subsequent orgasm, by direct or reverse sympathy, to the organs associated with them, other various forms and modifications of febrile disease are produced. Thus, if the stomach is affected with torpor, either primarily, as from the action of contagion swallowed with the saliva, or secondarily, by its sympathy with the cutaneous capillaries, or with some internal viscus; a total loss of appetite occurs, followed by sickness and vomiting. If the brain is affected, either primarily, as by the depressive passions, by exhaustion from watching, &c. or secondarily, as by the influence of contagious or malarial effluvia received into the stomach or the lungs, then prostration of the general powers, head-ache, delirium, stupor, tre-

mors, convulsions, &c. are induced. In the same way, the secretions from the internal organs, as from the kidneys, are diminished when a torpor takes place in them, either primarily, or by sympathy with the cutaneous capillaries, or other parts, and are restored with the renovated action. These phenomena take place in different degrees in almost all fevers, and vary according to the nature of the organs primarily affected, and to the state of the constitution, or of the organs individually. Thus, when the stomach is slightly disordered, as by indigestible food, or when the vascular system is deranged from exposure to cold, (when no inflammation is produced,) the fever which ensues is mild, the brain suffers little by sympathy, no delirium, &c. occur, and health is soon restored. If, on the contrary, a virulent contagion acts upon the stomach, and through its medium upon the brain, the sensorial powers are greatly exhausted, and the complication of dangerous symptoms, arising from the morbid condition of the nervous system, and from the total loss of powers in the organs of digestion, occurs, constituting the contagious, nervous, and malignant fever, or *typhus*, under its various forms and denominations.

Dr. Darwin explains the peripneumony as "generally induced by the patient respiring very cold air, and this especially after being long confined to warm air, or after being much fatigued or heated by excessive labour or exercise. For we can cover the skin with more clothes, when we feel cold; but, the lungs not having the perception of cold, we do not think of covering them, nor have we the power of covering them, if we desired it; and the torpor thus produced is greater, or of longer duration, in proportion to the previous expenditure of sensorial power by heat or exercise. This torpor of the lungs affects the skin with shuddering, and the stomach is also secondarily affected; next follows the violent action of the lungs from the accumulation of the power of irritation, and an inflammation of them follows this violent action, &c."

This author classed diseases according to their supposed origin in disturbed states of the vital powers; but the arrangement is quite fanciful, to say the least of it; and the frequent repetitions of species which occur under different heads, show its imperfection. Thus, he divided diseases into four kinds; those of irritation, sensation, volition, and association; and, forming his therapeutical doctrines according to the same views, he arranged the materia medica into seven classes. 1. *Nutrientia*, or those things which preserve in their natural state the due exertions of all the irritative motions. 2. *Incitantia*, or those things which increase the exertions of all the irritative motions. 3. *Secernentia*, or those things which increase the irritative motions which constitute secretion. 4. *Sorbentia*, or those things which increase the irritative motions which constitute absorption. 5. *Invertentia*, or those things which invert the natural order of the successive irritative motions. 6. *Revertentia*, or those things which restore the natural order of the inverted irritative motions. 7. *Turpentina*, those things which diminish the exertions of all the irritative motions.

This theory was never very generally received in England; but, stripped of the hypothetical phraseology and much modified, it appears to have been taken up and illustrated with much success by the celebrated Hufeland in Germany.

We are now arrived at a period when physicians, no longer dazzled by brilliant hypotheses, required in pathology and physiology the close analogical reasoning which had been found so useful in every other department of science. Hence systems of medicine, incapable of embracing all known forms of disease, have ceased to exist. Impressed with the conviction that our stock of known facts required much addition ere it could be generalized, the pathologists of our time have individually attached themselves to the acquisition of further experience

rience in particular diseases; and, when theory has been promulgated, it has generally had its foundation in new discoveries in physiology. Hence too it is no longer possible to enlist ourselves under the banners of any one pathologist, and, by quietly assuming the infallibility of his doctrines, save the trouble of thinking for ourselves. It must not therefore be supposed, that, because this æra may not transmit to posterity the name of an author whose works might contain all that we know on medical subjects, we have done less for the science we profess than our continental neighbours. True it is, that the speculations of Broussais and Tommasini have something better to recommend them than the systems of Cullen, Brown, or Darwin; yet still many imperfections exist in them, imperfections necessarily connected with the unfinished state of the ground-work on which pathology is built. Nevertheless, in real improvement, the first twenty years of this, the 19th, century, affords the most delightful prospect. The errors of Brown, here first promulgated, were here first refuted. Currie introduced the judicious use of cold bathing in the most numerous and formidable complaints to which human nature is liable, viz. fevers. Abernethy and Hamilton have shown the efficacy of purgatives in most diseases, and the innocence of their properly-regulated exhibition in all. The bold and decided treatment practised by Jackson, as well as his sound theoretical views, deserve the highest encomium; and we have to regret that the peculiar style and expression of that author has so long opposed the general reception of opinions which are equally consonant with reason and the long experience of thirty years. To Armstrong, Clutterbuck, and a host of others, the insertion of whose names would tend to render our history a mere catalogue, we owe the preservation of many of our fellow-creatures. Nor have our investigations on these topics been confined to our own island. The accounts we receive from our Indian possessions serve to instruct us in the treatment of acute diseases, by showing them in the intense marked forms which they exhibit in tropical climates.

Physiology likewise has been by no means neglected in this age. That science, which no longer can be called uncertain, has received auxiliaries from the improvements daily occurring in the collateral branches of knowledge. Its more general principles have been illustrated by discussions which the speculative notions of Hunter and Abernethy on the one hand, and Lawrence and the French physiologists on the other, have given rise to. The motive powers of the vascular system have been illustrated by Parry, Carson, Bell, Philips, and Brodie. To the two last of whom we are moreover indebted for some useful information concerning the phenomena of secretion and the dependence of that function on nervous influence. The contradictory opinions, however, which we meet with on these subjects, compel us to acknowledge that this science bears little proportion in its advancement to that of the practice of medicine.

In the early part of the present year, Mr. James, a surgeon of Exeter, published "Observations on some of the General Principles, and on the Treatment, of the different species of Inflammation." This work is an amplification of the Dissertation which gained the Jacksonian prize on Inflammation, when the illustration of this subject was recently proposed by the Court of Assistants of the Royal College of Surgeons. This production comprises many interesting observations; but the author is too much the disciple of John Hunter, and he exhibits more of the manner of reasoning of that physiologist, than a close investigation into the mode of production of the phenomena he describes: like him, he rests contented with a substitution of terms, instead of endeavouring to explain the operations of which they are only the expression: in a word, his ideas want precision, and his pathology depth. Mr. James adduces a new classifica-

tion of inflammation. His arrangement is founded on the disposition which inflammatory action assumes to spread or diffuse itself, or to be limited by the adhesive process or other means. In this point, too, we recognize John Hunter. As, however, this fortuitous quality of inflammation but seldom constitutes a generic difference in the form which the disease assumes, but depends on several varying conditions of temperament and other things in the patient, and on accidental conditions of the atmosphere, and other external circumstances, it appears to be objectionable, and not likely to be adopted by the generality of pathologists. The author's considerations in other respects, especially those relating to semeiology and therapeutics, are judicious, and developed with sufficient order and perspicuity.

In anatomy, as far as the relative situation of parts is concerned, our diligent ancestors have left us little to do. So that, if we except a few discoveries concerning the more minute structure of membranes, the muscularity of vessels, &c. we have nothing new to transmit to our successors on this subject. Far different is the result of our researches on morbid anatomy. The labours of Dr. Baillie, accompanied with descriptions and plates of great accuracy, are too well known to require our comment; as likewise the excellent works of Farre, Bell, &c. in the same department. And these examples have been followed very generally by our most eminent practical physicians.

Of course this brief sketch cannot be supposed to embrace all the names or discoveries which dignify our country in this enlightened æra. We shall have occasion to speak largely of them in the body of this article, when we come to notice particularly the treatment of each disease; and therefore may be excused entering in the detail of them here. In the mean time, it may not prove uninteresting to trace a faint outline of the labours of our foreign brethren at this moment. By so doing, we enlarge the fund of our experience, and thus correct the error into which more limited observation might betray us.

FRANCE.—If reiterated experiment and unceasing observation be the means which most forward medical science, the French nation have claim to high honour. In no other country is the science of life illustrated by so many experiments, elucidated by the application of so many different sciences, or examined so closely in all its varied and extensive phenomena: yet we observe theories continually arising, opinions asserted one day to be refuted the next. But some recent labours of the French physiologists, have established facts which stand on the firmest basis: such are many of the doctrines of Bichat, of Majendie, and of Broussais.

Of Bichat enough has been said, in every country where his works have been read, to stamp him as a philosopher of the greatest merit; and all who are interested in the improvement of science, must deeply regret the loss of one whose comprehensive and enlarged mind, whose minute anatomical studies, and whose brilliant pathological discoveries, alike fitted him for re-forming and re-casting the fabric of medical science. This vast design had been formed by Bichat; and, when a few lectures had developed his opinions, he was suddenly carried off. In teaching mankind to study the minute structure and fabric of the body, rather than to be perpetually occupied with the description of its relative situations and parts, he seems, like our countryman, John Hunter, to have followed that course which Lord Bacon had so clearly pointed out to anatomists, and in which much still remains to be done: he says, that "they (anatomists) inquire of the parts and their substances, figure, and collocations; but they inquire not of the diversity of the parts, the secretaries of the passages, and the seats or nestlings of the humours, nor much of the footsteps or impressions of diseases; the reason of which omission I

suppose to be, because the first may be satisfied in the view of one or a few anatomies, and the latter, being comparative and casual, must arise from the view of many."

The name of Majendie, already well known by his *Elements of Physiology*, is presented to us, in every periodical work we receive from France, as occupied in some interesting or useful experiment. Passing over his experiments in regard to the nervous system, to the absorptive power of veins, &c. we may remark, that he has lately been endeavouring to discover some more effectual mode of controlling the action of rabies than has hitherto been known. And, though it would be premature to offer any opinion on the probable result of his experiments, we may remark, that he has done the public great service by showing the complete inefficacy of drugs hitherto reputed specifics in the cure of this dreadful disease.

Of Broussais's physiological system of pathology we have given a short account at p. 43. Nothing is wanting to the full success and acceptance of that system, but that every body should think as well of it as the doctor himself does. On its first appearance, Dr. Hutchinson, the editor of the *London Medical Journal*, gave a favourable account of it; not quite sufficiently so, however, as entirely to satisfy the inventor. Dr. Granville, the present editor of that work, speaks rather contemptuously of it; Rasori (the contra-stimulant sedative Rasori) opposes it on the continent; and upon the whole it seems to be going down. Two commentaries on the doctrines of Broussais, of very different characters, have been recently produced at Paris. One of them, by Mons. Begin, is intended to advocate his principles, and to display them in a more perspicuous and orderly manner than has been done by Broussais himself; while the other, published anonymously in the *Revue Médicale*, a new monthly journal of great merit, is a jeu d'esprit, full of that fine satire and delicate ridicule which the French so well know how to employ, which, while it displays the character and conduct of Broussais and the merit of his writings with great force and sufficient eulogy, describes his vanities, his ingenious obscurities, the *nonchalance* with which he cuts the gordian knots he happens to encounter, and apologizes for the art with which he has appropriated to himself the opinions of others, in a manner truly Rabelaisic. From this publication we shall make an extract, in reading which the reader will bear in mind, that Dr. B. contends that all complaints arise from the stomach, and that lemonade and leeches are to cure every complaint.

"A distinguished man of letters, who is publishing a new edition of Molière, aware of the ridiculous appearance of some modern physicians, has determined to make some variations in the celebrated scene of the comedy of that author, entitled *Le Malade Imaginaire*. The following is a specimen:

Toinette, (dressed as a physician.) Let me feel your pulse. Come, come, beat as you ought. Ah! I'll soon make you go right. Faith! this pulse is mightily impetuous. I see plainly it does not know whom it has to deal with. Who is your attending physician, sir?

Argan. Monsieur Purgon.

Toin. That name is not to be found in my pocket-book, amongst the physicians of eminence. What did he say was the matter with you?

Arg. He says my liver is affected: others contend that it is the spleen.

Toin. Pooh! pooh! They are a pack of *ignoramus*. It is your stomach, sir, that is affected.

Arg. The stomach?

Toin. Yes! the stomach. What do you feel?

Arg. I have occasionally the head-ache.

Toin. Exactly so. The stomach.

Arg. I sometimes see double;—I have a veil over my eyes.

Toin. The stomach!

Arg. And a great difficulty in breathing.

Toin. The stomach again!

Arg. I suffer from great languor and lassitude in all my limbs.

Toin. The stomach!

Arg. And I now and then feel pain in my feet, in my heels, and toes, as if I had the gout.

Toin. Exactly so. It is the stomach! You eat with good appetite?

Arg. Yes, sir.

Toin. The stomach! You like to drink a small quantity of wine.

Arg. Yes, sir.

Toin. The stomach! You feel rather drowsy after dinner, and delight in taking a nap?

Arg. Oh yes, sir.

Toin. The stomach, the stomach, I tell you! What has your physician desired you to eat?

Arg. He desired me to take some soup.

Toin. *Ontologist!* [An appellation of contempt adopted by Dr. Broussais to designate all those physicians who seem to have identified or personified the different causes producing diseases, such as the gouty principle, the scrofulous humour, &c.]

Arg. And chicken.

Toin. Fatalist!

Arg. And occasionally veal.

Toin. Incendiary!

Arg. Broth.

Toin. Murderer!

Arg. Some fresh eggs.

Toin. What an assassin!

Arg. And stewed prunes in an evening.

Toin. Incendiary! the murderous diet of the ontologist school.

Arg. And, above all, he desired me to put water to my wine.

Toin. *Ignorantus, ignoranta, ignorantum!* This is not the way of a *medecin physiologiste*. You must drink pure water, which is indeed too nourishing as it is: it will calm the gastro-intestinal irritation under which you labour; and thin your blood, which is now too dense. You'll apply five hundred leeches to the pit of the stomach, which will remove the *gastro-enteritis* in the twinkling of an eye. Don't you see that "irritation is preying heavily on the mucous membrane of your stomach, from whence it extends its malignant power over all the organs of your economy, through sympathetic irradiations?" Be assured that your physician is an *ontologist*, who will believe only what he sees. I will come again to see you in a fortnight, if you are alive; and, above all, rest assured that, if I have abused my brethren of the profession, it was not through envy, but for the good of mankind. How superior to them all the doctrine *physiologique* makes me! "a doctrine which is destined to do more good even than the immortal discovery of Jenner." [The two paragraphs in this speech marked with inverted commas, are not a parody, but the real words of Broussais.]

The brain has of late been to the French pathologists what the abdominal viscera have long been to the English, the great object of interest and the subject of their especial consideration. Several works of much value have been the results of their labours. That which presents most evidence of a talent for original observation and profound and comprehensive reasoning, is one by Dr. F. Lallemand, of Montpellier. The greatest merit in the work of Dr. Lallemand consists in the admirable precision and perspicuity with which the histories of disease are given, and, for the most part, the very judicious reflections with which they are accompanied; the especial object of which is to trace the relations between the appearances observed after death, and the symptoms of the disease that were manifested during life. Dr. Lallemand differs from Dr. Rossan respecting the nature and origin of what the latter has described under the name of *ramollissement du cerveau*, and thinks that it is really a consequence

consequence of inflammation of a more or less chronic kind. He relates some cases which seem to show that it has, at least sometimes, such an origin. He advances a curious proposition respecting *delirium*, that has much apparent probability. He says, *delirium* is never observed in cases of inflammation of the brain alone; this symptom appertains especially to inflammation of the arachnoid membrane. It is not because the arachnoid is the seat of the immediate causes of *delirium*; but because this membrane, when inflamed, irritates the surface of the brain which is in contact with it; and, as the tissue of this organ is then not altered, its functions are merely "exalted;" these functions, on the contrary, cease (to an extent corresponding with the extent of the inflammation,) when inflammation has its seat in the proper substance of the brain.

A work of very considerable value on inflammation of the arachnoid membrane of the brain and spinal marrow, has been published by two young physicians of Paris, Drs. Martinet and Parent-Duchatelet, which is the result of several years' observation at the Hotel-Dieu and the Hospice des Enfants Malades, under the direction, and indeed assistance, of Drs. Recamier and Jadelot, physicians, respectively, to those institutions. This work presents such a number of cases (not selected, and therefore the more valuable, as presenting a view of what is of ordinary occurrence,) as will admit of general inferences, of more or less validity, respecting every point of most interest in the history of the disease.

The characters of *arachnitis* appear to vary as the disease occurs in parts of the membrane corresponding to different parts of the brain. Thus, the symptoms of *arachnitis* at the base of the brain, present, in general, characters by which the disease may be recognized, and distinguished from *arachnitis* in the convexities. There are, however, some varieties in those symptoms, connected with diversities in the age of the patient. In children, for example, who are disposed to be affected with this form of the disease almost exclusively, the excessive irritability of their nervous system occasions spasms in different parts, which give a particular character to the malady. These affections sometimes appear in a sudden manner, without any previous indications; at other times, the progress to them is more gradual; the state of the intellectual faculties presents less varieties than that of other organs. The degree of energy which the brain possesses in adults, and even in adolescents, enables patients of this class to resist much longer the disposition to stupor; so that this symptom is much less early and completely manifested in them than in children. In both, the lesion of the intellectual faculties results essentially from the want of action of the brain, from the inertia of this organ, and not from the derangement of its functions, or *delirium*, which is the predominating characteristic of *arachnitis* of the convexities. When inflammation is seated in the portion of the arachnoid which lines the ventricles, the symptoms are the same as those which result from it at the base of the brain; and in the greater number of cases it is present also in the latter region. Thirteen cases of inflammation of the arachnoid membrane of the spinal marrow are related, from which it appears, that the chief characteristic symptoms of this affection, are stiffness of the neck and trunk, pain along the vertebral column, in addition to the common symptoms of irritation of the nervous system, with the absence of signs of cerebral disorder when the inflammation is confined to the arachnoid of the spine, and their coincidence when the serous membrane of the brain partakes of the inflammation.

Two interesting cases of inflammation, and consequent disorganization, of the spinal marrow itself, have been lately published by Dr. Pinel the younger, which were characterized by continual convulsive motions of the whole of the trunk of the body, followed by an almost complete annihilation of the functions of the nerves of

voluntary motion, and accompanied by a febrile state of the system, having a paroxysm of exacerbation every evening.

The surgery of France, as far as operations are concerned, scarcely appears on an equal footing with the surgery of this country; and, if we were disposed to criticize our Gallic neighbours, we might further remark, that a great want of attention and respect is manifested by them for the labours of others. Thus Broussais, just mentioned above, has been lately labouring to show that we know next to nothing; and very unfairly supports his assertions by quoting the practice or the reveries of some of the obscurest contributors to our periodical publications. And Boyer, a character of great repute in France, and author of one of their standard surgical works, has the blindness to reject Mr. Hunter's excellent mode of operating for popliteal aneurism, and even denies his claim to the discovery of it. By the way, we may just extract from a case lately published by De Roux, an account of the method in which the operation for aneurism is performed in France: "I performed the operation," he says, "in the place where it is now practised in England. The artery was completely insulated from all adjacent parts, even from the crural vein, for the space of an inch. I placed four ligatures at about two lines distant from each other. Thus there were two ligatures to intercept the blood, the first and last being only left as *ligatures d'attente*. I then followed the recommendation of Scarpa, in applying upon the artery a small cylindrical body, an inch long and two lines in diameter, upon which I put a piece of linen, which had been dipped in melted plaster; on this I tied the two middle ligatures. I took care not to let the wound unite, and kept the lips separated by soft lint." An English surgeon will have little difficulty in seeing the striking contrast exhibited between this operation and the manner it is performed in the hospitals of London. Let us not however confound all in this censure: there are many who duly appreciate our toils and our merits; and there are many who deserve from us the same regard. We might mention scores of names in proof of this; but Larrey, Richerand, and Dupuytren, are sufficiently known to our medical readers.

In parturition, we have two curious recent cases to record.—A male child was born in May last, at the Hospital of la Maternité, at Paris, with the whole surface of the body deeply wrinkled, like that of a very old man. Its hands and feet are double the ordinary length, and are equally wrinkled. It has strong grey hair, and a beard of the same colour. In every other respect it enjoys perfect health, and is nursed in the hospital.—The following is not less interesting; though we have already remarked, (see the article PARTURITION, in the preceding volume,) that the French are in general more successful in these desperate cases than ourselves. At a meeting of the Royal Academy of Medicine at Paris, on the 7th of July last, (1821.) M. Beclard, one of the most distinguished surgeons of that capital, reported that he had, the day before, performed the cesarian operation, by an incision made in the direction of the linea alba; and that both mother and child were doing well. The report continues favourable down to the 10th, on which day the account was transmitted.

The French pay more attention to pharmacy than perhaps any other nation, and consequently their attainments in that branch of the healing art are very great. Simplicity has assumed the place of that multiplicity of formulæ which had overrun all the old pharmacopœias; and the analysis of vegetables which at present engages so much the attention of the French chemists, promises to afford very important information in regard to the modus operandi of medicinal substances; a subject of which very little is at present known.

These remarks have occurred to us in perusing the last Paris Pharmacopœia, or Codex, published in 1818, in a handsome

handsome 4to of 600 pages. But we must observe, that the French prescriptions continue to have more ingredients in them than our own; for we find one of the compound tinctures containing 18 ingredients, another 16, and so on. They are however, as we said, improving; for their *Alcoholatum vulnerarium*, which, in the former edition of the *Codex*, consisted of 42 ingredients, is now reduced to 13. We cannot, however, avoid noticing the *Electuarium opiatum polupharmacum*, *theriaca dictum*; and never was an epithet so justly applied as the term *polupharmacum* to a farrago containing upwards of 70 articles. This ne plus ultra of complexity is ushered in by the most solemn assurances that the compilers have not dared to encroach on, or alter in the slightest degree, the directions given in the preceding *Codex* (60 years since), for the preparation of this "percelebris compositio;" and that, although several of the compound medicines, which formerly entered its composition, have lately been excluded from the pages of the *Codex*, yet they have taken especial care to introduce every one of the constituents of those compounds in the exact proportion in which they entered the preceding formula; for instance, though the trochisci viperini are no longer in use, yet the *caro viperina* is carefully preserved as an ingredient of the *theriaca*. In order to give our readers some idea of the complexity of this formula, suffice it to observe, that the authors have judged it necessary to divide it into thirteen distinct heads, for the purpose of giving us some insight into the nature and action of this monster in pharmacy. These are, 1. *Acrida*. 2. *Amara*. 3. *Styptica*. 4. *Aromatica exotica*. 5. *Aromatica ex indigenis*. 6. *Aromatica ex umbelliferis*. 7. *Refinae et Balsami*. 8. *Graveolentia*. 9. *Virofa*. 10. *Gummosa*. 11. *Terra inert*. 12. *Dulcia*. 13. *Vinum*. The amazing complexity of this medicine, the very circumstance on which its celebrity is grounded, is a sufficient cause of condemnation. How is it possible to suppose, that the simultaneous exhibition of agents so opposite, is a desirable object? It will, no doubt, be always a most valuable acquisition to the quack, who, not knowing what intention he should endeavour to fulfil, may reckon with tolerable certainty, that some of the articles of this panacea are adapted to the wants of his patient. We cannot too strongly reprobate the retention of this compound, which has obviously arisen from timidity in the authors, who feared to reject a remedy of which so high an opinion is entertained. But by whom? They themselves answer the question, and confess they have acted according to the wishes of those who are totally unqualified to form an opinion. One of the reasons given for its introduction into the new *Codex* is, "quia a vulgo sæpius requiritur." A parity of reasoning would lead them to introduce into their *Pharmacopœia* all the quack-medicines of the composition of which they could attain a knowledge; and, indeed, this intention they have displayed on one or two other occasions. It appears to us, that in assigning the above cause for the retention of certain remedies, they have mistaken their duty, which is no less to decide what medicines ought to be retained or rejected, than to give accurate instructions for the compounding and preparing of such as are judged proper to compose a part of their *materia medica*. After all the ingredients of the *theriaca* have been mixed together, *secundum artem*, they are set aside for one year, in order to undergo a slow fermentation; as it is directed in the *Codex*. That they do not undergo this process, seems probable from the circumstance that analysis discovers no difference between parcels of *theriaca* differing much in age, the recent preparation perfectly resembling that which has been of several years standing. *Diacondium* is another electuary, translated from the old edition to the new *Codex*, in all its pristine complexity, with the same scrupulous regard to its composition as that we have just been considering. It is only to be wondered how the *Theriaca celestis*, and the *Benedicta*

laxativa, each of them consisting of at least twenty articles, could have so far degenerated as to have forfeited a place in this new edition.

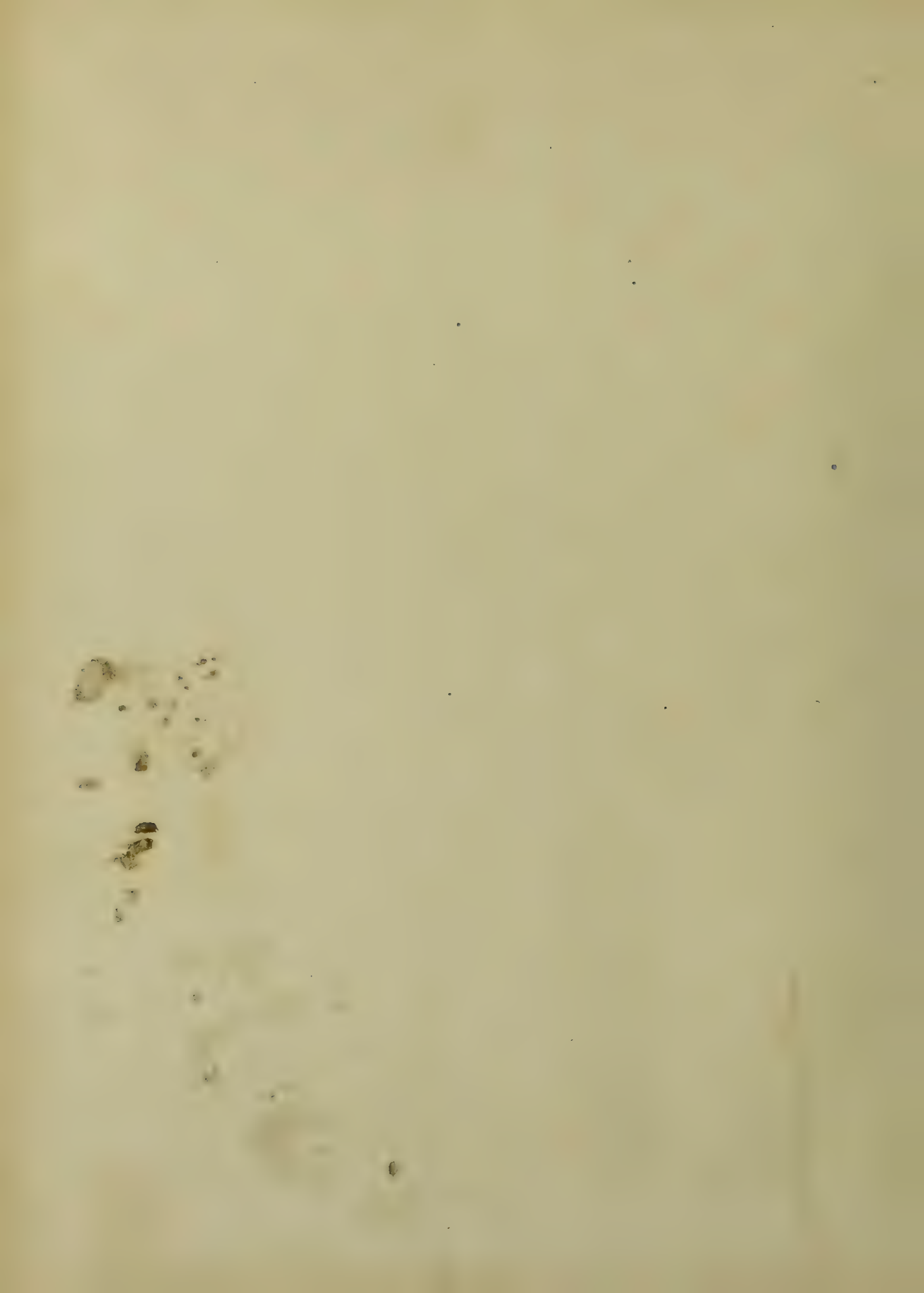
A new preparation of opium has been very recently proposed by Mr. Robiquet of Paris. It has been ascertained, that the most active properties of opium reside in two substances, which may be obtained in distinct forms, and which produce very different effects; *narcotine* and *morphine*, as they have been named. The former is a very powerful irritant to the nervous system, as appears from the experiments of Dr. Majendie; and it seems to be this substance which produces the effects which we so much wish to avoid in the administration of this medicine, and which are obviated, to a certain extent, by giving it in the form of the *black drop*, or other analogous acid preparations. *Morphine*, according to the evidence of the same experiments, and others made on human beings, produces sedative effects without symptoms of the slightest irritation. To separate the *narcotine*, then, from the other parts of opium, is a very desirable object of pharmacy; and Mr. Robiquet says it may be easily effected in the following way: "I macerate," says Mr. Robiquet, "common opium, divided into small pieces, in cold water, as if it were for the aqueous extract of opium; I filter the solution, evaporate it to the consistence of a thick syrup, and treat it, in convenient vessels, with rectified ether; the whole is then shaken a great many times, before the ethereal tincture is poured off; this, being separated, is then submitted to distillation, that the ether may be drawn from it. This process is repeated as often as crystals of *narcotine* are obtained as a residue of the distillation. When the ether is without action, I evaporate the solution of opium to a consistence proper for pills; and I obtain, by this means, an extract wholly free from *narcotine*."

In the *Revue médicale*, before quoted, there is an article continued from time to time, called "Medical Letters." These contain the medical obit-chat of Paris. From the 2d N^o of that work, we shall make a few extracts applicable to our present purpose. These letters contain much truth, but not without a mixture of what the French call *malice*, a term, however, not of so harsh a meaning as the same word in our language; and will certainly give an idea of the state of medicine, and the opinions upon it, at this time.

"Paris has long given the ton to Europe; and so completely dictates to the provinces, that whatever comes from the capital excites the greatest curiosity; a feeling the more predominant in medical men, from its having been as yet, with regard to them, less gratified. The daily papers detail only events of general interest; and the scientific journals exclude all anecdote. To fill such a gap will be a difficult enterprise, and the execution of it will offend many; but the consideration that science and the public will gain by it, is a sufficient incitement to the attempt."

"Petitions have been presented to both chambers, to protest against the suppression of the *concours* (examination and competition) in the election of professors; and one of the petitioners has proved to demonstration, that the only object in this suppression is to serve the interests of M. Royer-Collard. If this gentleman had taken the trouble to study chemistry, anatomy, and medicine, by way of qualifying himself to deliver a course of medical jurisprudence, there is no doubt but he would have saved government from all the blame which this election has thrown upon it. John Hunter, arriving at the age of twenty-two years from the mountains of Scotland, where he exercised the trade of a carpenter, became nevertheless one of the first anatomists of England. M. Royer-Collard, arriving at Paris at the age of forty from Chambéry, where he performed the duties of a commissary, might have found some better method of teaching medical jurisprudence than by reading lectures copied from a printed book which is known to the whole world.

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The source from which the professor drew these waters of science was soon discovered; each student, being able to taste them at the fountain-head for the moderate sum of thirty francs, the price of M. Fodéré's excellent *Treatise on Medical Jurisprudence*, did not hesitate between this expense and the fatigue of listening to tedious lectures; so that the professor found himself abandoned by his pupils, and left alone in the vast amphitheatre of the schools of the faculty. Such a mishap is certainly a sufficient apology for M. Royer-Collard's having given so few lectures in the first year of his professorship, and for having, during the succeeding years, renounced all public instruction. Still we are indebted to the professor for the excellent course of lectures which his pupils heard in the summer of 1819. As director of the *Bibliothèque Médicale*, he insured the success of the work by contributing the fewest articles to it; as professor of medical jurisprudence he felt it his duty to resort to similar means to recall his truant pupils, and accomplished his object by employing M. Orfila to lecture for him; and the success of the experiment did not detract from the reputation of the learned author of the *Toxicologie*.

"Several nominations followed that of this able chemist. M. Béclard was called to the chair of anatomy, M. Marjolin to that of external pathology. MM. Fouquier and Roux have also been lately appointed; the first to the chair of the *Clinique de Perfectionnement*, vacant by the death of M. Bourdier; the latter to a chair of pathology, vacant by the resignation of M. Percy. A proposal of this resignation; it is said in the medical world of Paris, that 60,000 francs was the price M. Percy received for this professorship; certainly a large sum for a place, the receipts and preservation of which are not certain. The case is not without precedent; at Montpellier in 1786, M. de Barthez sold a professor's chair to M. Grimaud for 30,000 francs. This is great authority for the venality of professorships; which, however, has one little inconvenience, i. e. that of excluding the poor man of talent, though it presents the inappreciable advantage of narrowing the field of favour; a divinity more to be feared than riches. Still we cannot complain of similar bargains, when they bring such men as M. Roux into a more extended sphere of usefulness. This excellent surgeon and learned professor must always have appeared to advantage in a concurrence with any rivals.

"Since the suppression of the *concours*, the faculty of medicine presents to the choice of the committee of public instruction four candidates. The three last are, however, only inscribed for form's sake. This sort of election is not at all approved by the faculty, who accordingly, in 1818, unanimously demanded that the vacant professorships should be given by the *concours*. The committee of public instruction refused to accede to this request; and, to avoid all discussion with the faculty, resolved to choose the first of the candidates named. It was therefore without any chance of success, that MM. Hufion, Récamier, and Pariset, were joined candidates with M. Fouquier.

"You have not forgotten that M. Pariset left Paris, by order of the minister of the interior, to observe the yellow fever which raged at Cadiz, with great violence, in the summer of 1819. In Europe, as well as in the tropics, this disease always disappears on the first approach of winter; a little trifling fact, of which M. Decazes ought to have been aware before he put the state to such an expense. As M. Pariset was still at Madrid on the 23d of November, it is clear that he could not make observations on a disease which had already disappeared from Cadiz. The only subjects for examination would be convalescents, who are perhaps as fit to give an idea of the character of a disease as a few stragglers to convey an appropriate impression of the nature and strength of an army. If M. Pariset had departed three months earlier, he might have given us the result of his

own observations; as it is, we shall only now have the opinions of the Spanish physicians, which could have as well been transmitted by the post. As yet the fruits of such an expensive journey are confined to four coloured engravings, published by M. Pariset, which, announced at a moment when all eyes were directed to Cadiz, excited great curiosity. We expected at least portraits of Quiroga, Riego, plans of the fortifications of La Isla, and the redoubts of La Cortadura. It was a cruel disappointment for the curious to find three faces of men dying of the yellow fever, and fourteen tongues; not tongues of eloquence and fire, but the dirty tongues of patients announcing to the eye and finger the state of the intestinal canal; and which are intended by M. Pariset to express the different phases of the yellow fever in succession. You will be surprised at this. Why? Since we class and describe diseases by the same method which botanists employ to class and describe plants, it is natural that we should endeavour to determine the characters of the former, by the aid of drawings. M. Pariset, indeed, must view diseases as enjoying great advantages in this respect; for Linnæus affirms that the colour of the corolla is too variable a quality to determine the distinction of vegetables; and our learned traveller considers the colour of the face and tongue as characteristic of diseases, in which the expression and colour of the face change from minute to minute.

"M. Gall has commenced his annual course of craniology in the amphitheatre in the Rue St. Victor. This science is getting singularly out of fashion. Time was when M. Gall made us pay high enough for his lectures, and we had difficulty to fight our way to the door. Now we enter gratis, and there is plenty of room. When M. Decazes was minister of police, he greatly encouraged the science of craniology, by giving its inventor a pension of 3000 francs. M. Decazes undoubtedly found the science useful in choosing his counsellors; and, if this minister's reign had continued, the late preventive laws would have been founded on craniological principles.

"A subject which has more reality and practical application, is the excellent course of human anatomy which M. Béclard gives to the faculty of medicine. M. Dumeril had already greatly advanced the study of this department of anatomy, considered in a philosophical point of view. Some indeed thought that he too frequently introduced the subject of comparative anatomy. M. Béclard is more reserved on this point; but the composition and analogies of textures, the forms and relations of parts, both in a state of health and disease, suggest to him at every step a variety of interesting general observations, which enliven the dryness of anatomical discussion, and are all of practical application. M. Béclard, before he became professor, underwent the probationary trials, as "*chef des travaux anatomiques*." MM. Dumeril and Dupuytren occupied this honourable post before him. M. Breschet now fills it in a manner which will soon place him on the distinguished level of his predecessors. M. Chauffier still teaches physiology, and gives two lectures a-week. This learned teacher always displays the same profound views, and the same originality of ideas. He still preserves his prejudices against the accessory sciences, which he calls "*strangers to medicine*," and against chemical explanations of phenomena, which he styles "*chimerical*."

"Since Professor Cuvier has become a statesman, and science is only the amusement of his leisure hours, there are no other lectures on comparative anatomy at Paris, but those given by M. de Blainville, at the *Faculté des Sciences*. They are very well attended, and would be more so if the theatre of the *Collège de Pleffis* were larger. M. de Blainville, as a savant and professor, promises to be a worthy successor of his master Cuvier, whom we trust he will follow in his Linnæan zeal for the science of nature; but we hope he will not imitate him in those pretensions

pretensions to nobility, which made Buffon ridiculous though born noble; nor that in love of office, which was the misfortune of Pliny the elder, and of which M. Cuvier seems to have his share.

"You are acquainted with the work which M. Geoffroy de Saint Hilaire published last year on philosophical anatomy, in which he endeavoured to bring all the types of organization to a primitive and unique form. M. Geoffroy continues to illustrate his discoveries at the College de Plessis before a numerous audience, and demonstrates that "insects are provided with a skeleton as complete as that of the large quadrupeds; that the crustaceæ do not walk upon their claws, but upon their ribs. It is a pity that man is not a lobster, for then, like our first father, Adam, we might lose our ribs without being aware of it, which would have diminished the risk which M. Richerand ran in removing those of the unfortunate Michelleau, in his famous operation for cancer." For a long time M. Richerand has published nothing but new editions of his old works: it is matter of regret; for this surgeon has great talents as a writer. The clearness of his style is admirable, and his works have been universally popular as elementary books. But M. Richerand as author, and M. Richerand as professor, are two very different persons. It appears to be matter of regret that M. Richerand should have changed his former chair of external pathology for that of operative medicine. In the latter he had to succeed M. Dupuytren. Who could stand the comparison? M. Dupuytren is perhaps the only surgeon, who with C. Bell and M. Delpech, has made it his study to teach the art of operating by showing the relation of different methods with the structure of parts, and by determining the advantage of each proceeding according to the alterations of form produced on organs by disease. "The lectures on chemistry are, of all the lectures delivered at the Faculty of Medicine during winter, the best attended. He who wishes to know chemistry thoroughly, must attend M. Vauquelin. He who wishes to see chemical facts philosophically arranged and illustrated by experiments skilfully performed, must go to the College of France, and to the Faculty of Sciences, to hear M. Thénard; but he must make haste, for it is as difficult to get a place to hear Thénard as to see Talma.

"A new and rival school has risen by the side of the Faculty of Medicine. A generous opposition is already the result, and it will probably save the medical schools of France from the destruction which hovers over them. Indeed the school of Val-de-Grâce can only yet boast of one professor of celebrity; but this teacher is endowed with real talent. He has all the enthusiasm of a reformer, and the power of communicating it when necessary. It is in vain to conceal the influence which M. Broussais already exercises, not only on the studies of the pupils, but on the practice of the physicians of the capital. As this influence is the most important fact I have to communicate at present respecting our science at Paris, I shall take an early opportunity of detailing to you the doctrines of M. Broussais. It would not be judging properly of his doctrines or practice to repeat with the public, that the annual consumption of leeches in the civil hospitals of Paris, which constituted only an expense of 2000 francs, is now 80,000. (See p. 46.) You will nevertheless have heard that M. Broussais is not so much in vogue as last year, when the minister at war found it necessary to close the doors of the hospital to the crowd of students who besieged them. As the doctrines of M. Broussais are of a direct practical application, the above-mentioned circumstance may have retarded their propagation. It does not much signify. If these doctrines are true, reflection and time will only serve to establish them; if they are false, it is perhaps better that the pupils should defer the examination of them until they are qualified to judge and think for themselves.

"There are some people in the world, doubtless, who

wish to establish the amount of a salary upon any other consideration than the service rendered for it; but we must look to a madhouse only to see the salary increase in direct proportion to the diminution of attendance. In the hospital of lunatics at Charenton, the following regulation appears: "The physician shall reside in the establishment; he shall receive a salary of 4000 francs, and pay five visits a week; if he does not reside, he is to receive 6000 francs, and pay only three visits." Talking of the Charenton, I must give you an account of a new method of improving the salaries of physicians in hospitals where the patients pay for their board. This plan consists in assigning to the former a certain share, say two-twelfths, of the savings which are made on the sum the patient pays, rendering it of course the interest of the physicians to make this saving as considerable as possible. The salary of the physician, therefore, it is evident, can only be limited by the bad intentions of a director too much attached to the welfare of the patients. This may be easily obviated. By the assistance of calumny, the director is got rid of; and, to prevent all future disputes, the direction of the hospital is made the marriage-portion of the physician's daughter. I need not tell you that the Lunatic Asylum of Charenton is out of the administrative control of the hospitals of Paris.

"When a man professes zeal for his profession and love for humanity, his ardour in discharging his duties is above all remuneration. At the Hotel Dieu, M. Dupuytren receives a very moderate salary, which is neither directly nor inversely proportioned to the number of his visits, and which does not prevent his going winter and summer to the hospital from half-past five in the morning to ten, and again returning in the afternoon to see the patients who have been recently operated upon. Here, also, M. Dupuytren, before performing an operation, establishes, in presence of a numerous audience, the causes which indicate it; he discusses the methods of operating employed by surgeons, and describes the one at length which he is about to employ.

At the Charité, MM. Boyer and Roux alternately take charge of the clinical department. M. Boyer examines the house-pupils on the patients entrusted to their care. The professor discusses the most important cases, and displays all that profound knowledge and practical ability which have long ranked him amongst our first surgeons.

At the Hospice de la Faculté, there are only forty beds, and the patients are selected with great care. M. Dubois can therefore devote to each patient a sufficient time to establish the diagnosis, and answer the questions which each pupil has a right to address to him. In the theatre, the professor enters on the cases which have been operated on, or those which are about to take place. The operation is then performed, after which M. Dubois sees the out-patients. Here he applies public instruction to private practice, and presents us in part with the advantages of those private establishments which in Germany are called *clinica ambulatoria*. M. Dubois is really indefatigable; to the experience of age he joins the ardour of youth. Charged with the instruction of female midwives at the Hospice de la Maternité, he has just commenced a public course of lectures on midwifery for medical students. These lectures will be quite an epoch, and unfortunately they will be the last which M. Dubois will give on a subject which requires more to be reduced than extended. Who will be better able than this learned surgeon to reduce to their proper value the pretensions of those surgeons, who have only become great accoucheurs because they were not fit for any thing else?

"M. Roux has repeated with success the beautiful operation of the future of the *velum palati*, which he was the first to practise, upon an American, who had had a congenital division of this musculo-membraneous part. Some months ago, at the Royal Academy of Sciences, the subject of this operation, whose voice before was hardly perceptible, read his own case very distinctly."

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The following account of the funeral of the celebrated Corvisart, well known to the English faculty by his writings, which we extract from the *Journal des Debats* of the 22d September, 1821, may be thought curious by the mere English reader. "The obsequies of M. le Baron de Corvisart, physician, took place to-day. In pursuance of the directions contained in his will, his body was not taken to the church of St. Elizabeth, his parish, but was conveyed to his estate at Atys, where he desired that the religious ceremonies should be performed. A deputation from the Faculty of Medicine, in their doctor's robes, (*en habit doctoral*), and nearly all the physicians of Paris, repaired this morning to his late residence, Rue de Vendôme, for the purpose of attending his funeral. Mr. Leroux, dean of the physicians of Paris, pronounced a discourse over his body. The coffin, covered with the mantle of a doctor, and with the different orders which had been conferred upon the deceased, was afterwards placed in a hearse, to be taken to its destination, whither the deputation of the faculty, and a great number of other persons, accompanied it."

As we have spoken largely of the management of the hospitals, we shall conclude with a few words upon the subject of the lunatic asylums.

The Salpêtrière, under Dr. Esquirol's management, affords as fair a specimen of the result of benevolent consideration and exertion as any institution to be found in France, or on the continent. Here the classification of patients is attempted, and to a considerable degree carried into effect; though, without doubt, there is still much to be desired. The use of chains, and all that apparatus of severity which formerly obtained, are entirely done away; and the result has pretty clearly demonstrated that in an institution of this kind, properly conducted, they are useless. Confinement and the strait-waistcoat, we are told, are the only restraints now had recourse to at La Salpêtrière. The latter of these, for very good reasons, is very much abandoned in this country: it is never used at Bethlem, and very seldom at St. Luke's: its inexpediency is very apparent. The patient is quite incapable of assisting himself in a thousand little necessary offices; and, when locked up by himself, this becomes unusually irksome. When the wrists are manacled together, even the most furious are helpless: or a leathern girdle may be put round the waist, and the arms may be pinned down to this in a way to prevent any injury.

The treatment pursued here is no longer the decided and active one, in the way of bleeding, purging, &c. which used to be practised. M. Esquirol considers mental alienation as an acute disease, having its successive periods of intensity, decline, and convalescence, the order of which is not to be disturbed by officious interference, though the symptoms are to be moderated by gentle means, viz. tepid baths, diluents, occasional soothing medicines, and very slight douches. Speaking to Dr. Clark of relapses, he said that he had known many cases where a paroxysm had occurred after bleeding; in some cases after a small, in others after a large, bleeding. The treatment is made as much moral as possible. An effort is made to gain the confidence of the patient; and this is generally obtained by appearing to take an interest in his affairs, and by scrupulously preserving good faith. As much work is given them as can be procured. The convalescents have a large room where they are employed at their needle; and, by way of encouragement, they receive a trifling remuneration for their work. M. Pinel, as is well known, removed the regular servants from the institution, and set the convalescents, with much profit to themselves and their unhappy companions, to attend upon the patients, and do the little menial offices.

Dr. Esquirol, from 800 dissections which he has made, has come to the conclusion that "he has never found any constant alteration in the structure of the brain, or of any

other part. The hardness of the brain, insisted upon by many, he had not generally remarked."

The excellent regulations we have just noticed belong to Paris, not to the provinces. But the Report of the Committee appointed by the British parliament produced a sensation on the public mind which was strong and permanent; and, we rejoice to say, that its good effects have not been confined to England alone. The governments on the continent have taken alarm, and investigation has every-where commenced. The French government appointed Dr. Esquirol to visit all the receptacles for lunatics in France; and the result of a tour which he undertook for that purpose, is stated in a "*Memoire présenté au Ministre de l'Intérieur*." It is but justice to Dr. Esquirol to state, that this Memoir is drawn up with much ability and feeling; and, as far as we are able to judge, with strict justice and candour. It, in fact, does equal credit to the head and heart of the writer.

"Those for whom I plead," says Dr. Esquirol, "are the most interesting members of society; for they are almost always the victims of the prejudice, injustice, and ingratitude, of their fellow-creatures. Among them are to be found fathers of families, faithful wives, skilful artisans, brave warriors, and distinguished literary characters, ardent, proud, and acutely sensible minds; and yet these individuals, who ought to attract a peculiar degree of sympathy and interest; these unfortunate beings, suffering under the most fearful of human miseries, are treated worse than criminals, and reduced to a condition below that of the inferior animals. I have seen them naked, or half covered with rags, with only straw to protect them from the cold and wet pavement upon which they lay. I have seen them badly fed, without air to breathe, water to quench their thirst, without, in fact, the first necessities of life. I have seen them in narrow, dirty, infectious, cells, without air, without light, chained in dens, where we should hesitate to confine the wild animals which the luxury of our governments keeps up at such expense in our capitals. This is a faithful picture of what I have seen all over France; and this is the manner in which the insane are treated in almost every country of Europe."

The insane, in France, are almost all placed in public establishments; either in institutions specially devoted to them, in hospitals, in the *dépôts de mendicité*, or in houses of correction and prisons. They amount to 5153 in number, and occupy 59 houses; out of this number, more than 2000 belong to the three great establishments of Paris. It is rather singular, that in the southern provinces of France, the proportion of men considerably exceeds that of women; while, in the north, the reverse is observed. In Spain, the proportion of men is greater than that of women.

There are only eight establishments peculiarly dedicated to the reception of lunatics in France. These are at Armentières (for men only), Avignon, Bourdeaux, Charenton, Lille (for women only), Marseilles, Marville, Rennes. There are several glaring defects in these institutions. At Charenton, for instance, part of the institution is used as a workhouse for the poor of the neighbourhood. Epileptic patients are mixed with the lunatics, and prisoners are occasionally confined in the same house. Incurable cases are also received, and are kept there for life. So it may be said, that there is in France no institution specially devoted to the treatment of insanity. In thirty-three towns of France, which M. Esquirol specifies, the insane are received into the general hospitals, which are also appropriated to the old, the infirm, and the diseased; to venereal patients, and to those affected with cutaneous disorders, and which even admit women of disorderly lives, and criminals. In the cities where *dépôts de mendicité* have been established, a portion of the building is devoted to lunatics, but only to those who are furious; these are kept constantly chained in their

their cells. The others, intermixed with paupers, are without any of the care which their state requires. Dr. Esquirol specifies twelve places where lunatics are received into the *depôts de mendicité*. In seven towns, lunatics are even confined in prisons, and chained by the side of the most abandoned criminals. The latter can work, and the produce of their labour enables them to procure many comforts: the insane are deprived of this resource, and exposed to the jefts of the most abandoned wretches. How humiliating must their state be, if a lucid interval reveal to them their situation; and if, in spite of so many obstacles, a cure should be effected, how dreadful must the recollection be of such scenes!

Our author now proceeds to give, in a general way, the result of his observations. The buildings devoted to the insane in France are bad: for they are always confined, damp, and generally in a ruinous state; and even in the *depôts de mendicité*, and some hospitals where new buildings have been erected for the insane, they have been constructed without reference to the object for which they are intended. The cells are dreadful: without air or light, narrow and damp. They are paved like the streets, are often under ground, and sometimes in caves. They have seldom any other aperture than the door, and a small square hole opposite to it; and very often, even this aperture is wanting. There is, consequently no circulation of air, and the smell is almost suffocating. Almost all the insane, not only the indigent, but those who pay, are naked, or only clothed in rags. They receive the tattered garments which have been thrown off by the poor, or the prisoners. Straw is all they have to protect them from the humidity of the ground, and the coldness of the air; and straw is sometimes wanting! "J'ai vu un malheureux imbécile, tout nu et sans paille, couché sur le pavé. Exprimant mon étonnement d'un pareil abandon, le concierge me répondit que l'administration ne lui passait, pour chaque individu, qu'une botte de paille tous les quinze jours. Je fis remarquer à ce barbare que le chien qui veillait à la porte des aliénés était logé plus sainement, et qu'il avait de la paille fraîche et en abondance; cette remarque me valut un sourire de pitié. Et j'étais dans une des grandes villes de France!"

In no institution is there room enough for the patients to take air and exercise. The space allotted for that purpose is promiscuously devoted to both sexes; and, in some houses, the patients are brought out and "chained to the walls of the court, by way of taking the air."

The attendants are insufficient, and ignorant; and, indeed, in most houses the patients have no servants. In prisons, the jailor, who has fifty or sixty criminals to look after, has also to attend to beings who have not the power of expressing their wants.

Chains are every-where employed: 1. On account of the wretched state of the buildings: 2. From the insufficiency of attendance: 3. From the ignorance of the keepers: 4. From the expense of waistcoats. "J'ai envoyé des gilets pour servir de modele dans plusieurs villes; on ne s'en sert point par économie; il est certain que les chaînes coutent moins d'entretien." The chains employed consist of iron collars, girdles, and fetters. In one institution, the patients were confined by means of an iron collar attached to a chain, a foot and a half in length. A whip is in the hands of the servants, and the bunch of keys is made a common instrument of correction. In all the establishments of *Paris*, containing 2000 individuals, corporal punishment has been long abolished.

The medical men in the different towns have made many efforts to remedy these abuses; but, disappointed in their attempts, they have become disgusted, and only visit the insane who labour under illness, but never with a view to cure the insanity. The servants of the hospital order the means which they judge necessary. At Toulouse, from time immemorial, it has been the custom for the medical men to visit the indigent in the general hos-

pital, but they never go into the quarter where the insane are confined.

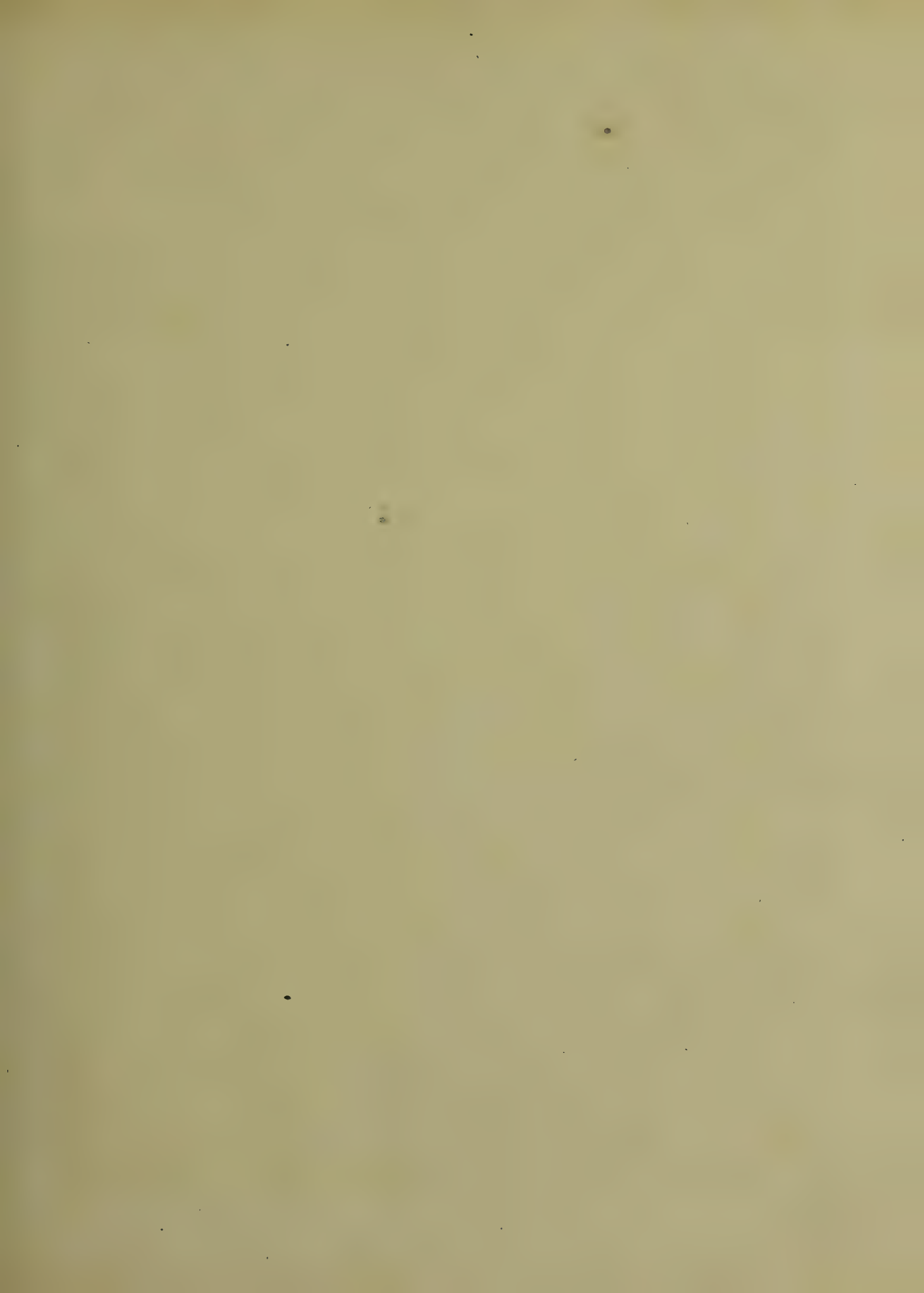
The magistrates, deceived by false reports, and frightened at the tales with which interested keepers awaken their fears, never visit the lunatics; reconciling their consciences to this act of neglect, by viewing the patients in the light of incurables, and thinking they have done enough when they have put them out of a state to do harm, and given them bread and water sufficient to keep them from starvation.

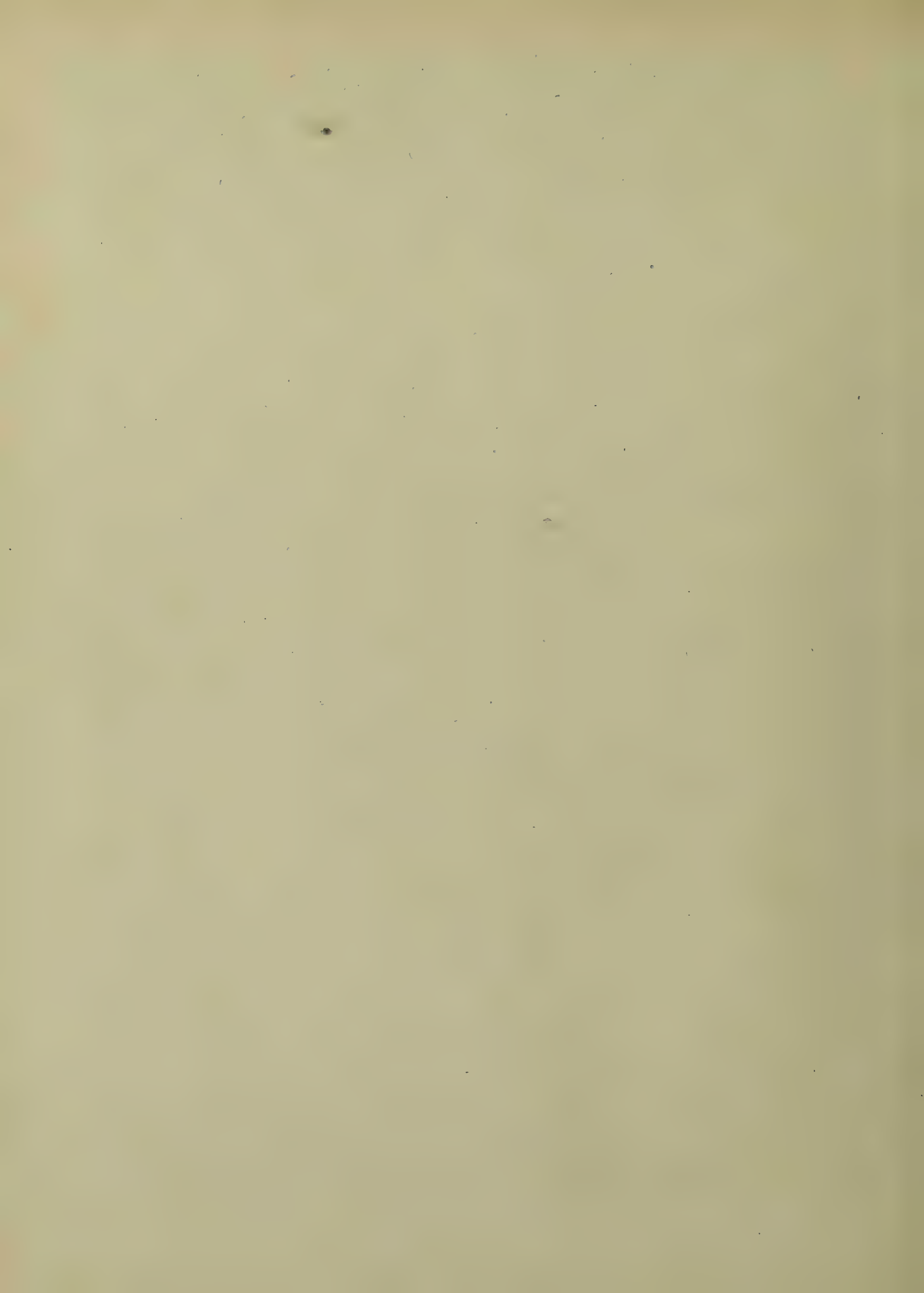
Having detailed the abuses which exist, our author next proceeds to consider the best method of remedying them. The outline of his plan is something like what has been proposed in England; to build asylums in various parts of the kingdom, which should be appropriated to lunatics only. Dr. Esquirol is of opinion, that about twenty of these buildings would be required for the whole kingdom of France; and, as there are already three at Paris and eight in the provinces, he would retain these for the sake of economy; and, after radically reforming them, built nine others; all which he would place under the direction of a managing committee, to consist of the prefects of different departments, subscribers, manager, physician, &c. The directors and physicians to be in constant correspondence with a central committee, immediately under the superintendence of the minister of the interior. In conclusion, Dr. Esquirol announces his intention to publish an extensive work on insanity, which may perhaps afford us an opportunity of resuming this interesting subject.

IN ITALY, the madhouses are in a state equally lamentable, or more so. Dr. James Clark (Medical Notes on the Hospitals of France, Italy, &c. 1826.) has given us some shocking instances at Turin and Genoa; and the temper of the Sardinian government does not lead us to expect any prompt amendment, as reformation is not the order of the day in that unhappy country. Dr. Clark says,

"The part of the hospital (Casa de' Pazzi) we were first taken to, consisted of small rooms similar to those generally met with in such institutions; but I was disappointed to find these were not for the poor patients, but for those who paid a certain sum for being kept. The first of these that was opened presented to us the wretched prisoner, perfectly naked, and chained down to his bed by both wrists. He had raised himself in his bed as far as his chains admitted, by which movement he had cast off the single coverlet that had been thrown over him. He had no shirt; his legs (apparently red and swollen from cold) were drawn up under the corner of the bed-cover, which lay over a small part of his body; he was pale and emaciated; he uttered not a word. In short, a human being in so wretched a state I had never before seen; but I was soon to witness others in a state still more horrible. We were next conducted into a ward where thirty beds were huddled together, on most of which lay a poor wretch chained by one or more limbs to the bedstead; for to each corner of these was attached a massy iron chain, with a clasp of the same materials and strength at the extremity, for admitting the wrist and ankle; and, according as the keeper judged necessary, one or more of these were applied. Some were polished and bright as silver, from constant use. I imagined that these were the most unruly patients, but was told that this was by no means the case. To these we were next led; and, on unbolting the door of a large cell, the scene that presented itself almost exceeds belief. The spectacle of the poor wretches, naked, or covered only by some straw, chained down hand and foot to their bedsteads; the clanking of their chains; the dreadful vociferation they set up at the sight of him who had rivetted these chains; the still more horror excited by such a spectacle; no terms are strong enough to depict! I had read and heard of chains and other means of torture for subduing (irritating) the unfortunate maniac; I had even seen such,

singly





singly chained to the wall by the neck, like an infuriated and dangerous beast; but a den like this, crowded and crammed with human beings, chained down, without a rag of covering, struggling to raise their heads, and exhibiting their emaciated and galled limbs from the heap of straw that had been thrown over them; was a scene I never expected to witness, and which I hope I may never witness again. In this cell there were twelve men, three of whom only were allowed any thing more than straw to cover them. Some I was told had been confined there for many months. On approaching them, they exhibited their chained limbs with the most earnest entreaties for liberation. One man had two chains on one arm. In this case the space between the iron clasps was red, swollen, and ulcerated; and the mortification, which in all probability was to follow, would soon render chains unnecessary for him. Others had their limbs galled, but not in such a degree as that described. In one instance only, in the whole hospital, did I observe any thing introduced between the iron ring and the limb. The rest of the men's wards were similar to that I first noticed.

"From the men's we were led into the women's department, which was in the higher part of the house, and which, in every respect, we found similar to that we had just left, the beds huddled closely together, chains always ready, many applied, and most of the beds occupied; for, whether to save trouble, or from the poor creatures having no clothes but the coverlet that was thrown over them, almost every one was in bed. Here, as below, was also a cell where straw afforded the only covering, where the chains were more heavily applied, and where the state of furious deperation to which the wretched victims were driven, was expressed in terms equally violent, and still more affecting. One of these tortured women held up her arm which was raw, and had been bleeding, from the iron clasp having worked its way into the flesh!

"Such is the dreadful state of this house, which contains 180 males and 97 females, of whom one third, the keeper told me, were kept *constantly* chained. From the same source I learned, that the annual number of deaths (and this, I apprehend, is the principal way in which this house gets rid of its inhabitants) sometimes amounted to eighty (nearly one third of the whole); that it had been as few as thirty; and that the average was fifty (nearly one fifth); a mortality, I believe, unequalled in any institution of the kind in any country." But we now turn to a more pleasing topic, the general state of pathology in Italy.

We have mentioned the celebrity the Italians acquired in the 17th century as professors of anatomy; and we may observe of the present æra, that the labours of Volta, Scarpa, Fontana, Rossini, and Mascagni, have much contributed to maintain that reputation. As far as the practice of medicine is particularly concerned, until of late, it appears to have been in a very lamentable condition up to the year 1812. The Italian physicians were divided into Brownists, humorists, those who followed French *expectante* system, and a few who practised more correctly according to precepts originally derived from Sydenham. To these are now added others who adopt what is called the *contra-stimulant* method, (see p. 41.) and who boast among their distinguished advocates Tommasini and Borda. It was Rasori, however, who first introduced this *nuova doctrina medica Italiana*. During the memorable blockade of Genoa, that physician obtained very great opportunities of studying the progress and character of petechial diseases; and the calamitous results which followed the application of the means recommended by Brown in almost all cases soon led him to attempt a contrary plan of treatment, the success of which amply proved that these fevers were of an inflammatory nature. Further investigation convinced him that scarcely any diseases could be traced to direct debility; and he accordingly established that theory of fever of which the leading features corre-

spond very closely with the observations of the English pathologists. The medical school of Bologna, which is in a very flourishing condition, may be considered "at the head of the new doctrine;" and the professors, among whom we find the name of Tommasini, its most zealous and able advocates. A periodical journal, too, has been established at this place, to give an account of the rise and progress of these opinions. In the mean time, these opinions are warmly opposed by many of the Italian physicians. Among the most distinguished of these opponents are Spallanzani of Venice, (a nephew of the celebrated Spallanzani,) and Federigo of Venice; but their efforts are not calculated to have much influence in the medical world.

The doctrine of this school in regard to the operation of drugs merits our most earnest consideration. The grand axioms in Rasori's theory, and that in which it is most strenuously opposed to the doctrines of Browne, is that "*there exists a class of substances whose action reduces fever; slackens the circulation; and, if pushed too far, induces direct debility, without the intervention of any notable discharge.*" Instead of presuming to argue upon this singular and bold assertion, we shall avail ourselves of the "State of Medicine," appended to Lady Morgan's *ITALY*, by Sir Charles Morgan, M. D. for a full exposition of Rasori's doctrine, and also for some very just and perspicuous remarks on the general state of medicine throughout Italy at this time.

Alluding to the axiom stated above, Dr. Morgan proceeds thus: "The notions formerly entertained of these drugs were, that they operated by diminishing or diluting the mass of circulating fluids; in which they were supposed to coincide with the operation of letting blood. The *contra-stimulant* doctrine attributes their utility to their direct impression on the living solid; to an action which, when excessive, will extinguish life by an instantaneous exhaustion. In this class of substances must be placed aconite, digitalis, antimonials, and in general all mineral substances, cicuta, the venom of the viper, the laurel-water and prussic acid, cambrage, tea, coffee, &c. &c. The classes of stimulants and contra-stimulants, according to this theory, stand opposed to each other in their relations to the living fibre, and serve mutually as counter-poisons to each other. Hence, say the advocates for this doctrine, has arisen the abundant use of coffee among the Turks, as an antidote to the opium they employ so largely. Hence also the utility of the vegetable acids as counter-poisons to the same drug. The *contra-stimulant* effect of lemon-juice is much greater than is commonly supposed. The author, when at Naples, having experienced a slight coup de soleil, inducing a bilious vomiting and febrile paroxysm, adopted, under the advice of the natives, the free use of lemonade. Two or three quarts of this fluid, taken in the course of the morning, not only removed the disease, but induced a degree of debility sufficiently irksome to require vinous stimulation.

One of the most important facts attached to this doctrine is, that the effect of any given dose of a *contra-stimulant* drug upon the constitution, is inversely as the degree of stimulation; and consequently, that, in inflammatory diseases, the patient not only requires quantities totally unusual in English practice of these remedies, but bears them without any notable effect upon the excretions. In practice, therefore, the measure of the dose is found in the quantity of excitement; and no dose is deemed excessive which does not change the diathesis and induce dangerous debility. Thus in rheumatic maladies, the Italians employ aconite, from a grain to a drachm; the kermes mineral, from eight to twenty-eight grains; emetic tartar, from eight to seventy-eight grains; the laurel-water, from ten to sixty drops; digitalis, from four grains to half a drachm; nitre, to half an ounce or an ounce. These are commonly given in divided portions through the course of the twenty-four hours, largely diluted with

any simple drink the patient prefers. It is usual to begin with a small quantity, increasing it more or less rapidly according to the urgency of the symptoms. However extraordinary these facts may appear, there are few English practitioners who have not had opportunities of witnessing similar results from the administration of James's powder. Indeed, so great is the apparent caprice in the action of this drug on the stomach, and the variety in its evacuant effects, that it would be almost impossible not to suspect an inequality in its preparation, without this key to explain the phenomena. Half a paper or a paper of the real James's powder, repeated at short intervals, has, in some cases of fever, appeared to be perfectly inert, neither inducing vomiting nor perspiration, though the tongue has been found moist, and the fever abated, on the following morning. The author's attention was first attracted to the fact by the practice of a friend, who trusts especially to this remedy in the cure of fevers, notwithstanding the absence of all sensible action from it, except the very important one of the amelioration of the patient.

The possession of these facts could not fail to have had a most beneficial effect on the practice of physic, in a country whose climate develops inflammation with so much intensity and rapidity; but it has been far more extensively useful in banishing those dangerous errors of practice which had crept in, through the Brunonian doctrine of indirect debility, or of diseases arising in excessive stimulus being curable by still greater stimulation. In inflammatory disease, (no matter whether chronic or acute, no matter whether occurring in a vigorous or a debilitated subject,) excessive stimulation is the cause of malady; and the contra-stimulant remedies afford much more successful methods of cure than are to be hoped from wine, or ether, or any other stimulant. Although the means employed by the contra-stimulant physicians may somewhat differ from our own, yet the indications are generally the same as are recommended by our best authorities. There is a considerable agreement between their views and those of Dr. Blackall, respecting the treatment of dropsy. In this fatal disease, the contra-stimulant physicians have to boast of much success. It is a malady rendered very common in Lombardy by the prevalence of intermittents generated in the rice-grounds, and it seldom finds its way into the hospitals till more or less extensive disorganization has taken place: yet the mortality in the clinical wards of the Ospedale Maggiore of Milan, during three years (1812, 13, and 14) that the contra-stimulant practice was pursued there by professor Rasori, did not exceed $\frac{28}{100}$.

A considerable comparative success has resulted also from the same mode of treating consumption. The deaths in the register amount indeed to $\frac{68}{100}$; but, if the disease had been defined with any degree of accuracy in the entries upon the hospital-journals, even this limited success is a matter of comparative triumph.

The treatment of dysentery is chiefly by cambrage, given as a contra-stimulant, the dose being gradually increased till it induces diarrhoea, which is considered as a sign of the resolution of inflammation.

With respect to acute diseases, although the contra-stimulant practitioners push their remedies further than was usual under the other Italian systems, it may be doubted whether they do not yet stop short of a proper vigour. The average mortality of the clinical wards in the Ospedale Maggiore, during three years, was less than 11 per cent. whereas in the other wards, where the older practice was followed, it amounted to 16 per cent. The total number of sick was 4855; that of the deaths, 520. Of these cases, 1302 were pneumonies, consumptions, tabes, dropsy, typhus, and patients received in articulo mortis, of whom died 428. The deaths in pneumonies were $\frac{20}{100}$; and in typhus, $\frac{12}{100}$. This exceeds the deaths in the worst epidemics that have occurred of late years in England. That 22 per cent. in pulmonary inflamma-

tions should be thought a small proportion, (every allowance being made for the stimulating qualities of the climate,) seems to indicate an inefficiency of practice, at least as compared with that of England. It is not therefore improbable, that the employment of contra-stimulant drugs may have led to a partial abandonment of blood-letting, or, at least, to a confidence in smaller effusions of blood than are necessary to cure the disease by a coup-de-main. The action of tartar-emetic, however powerful, is slow; and, in acute diseases, the first twenty-four hours are most important. It is not therefore impossible, that this valuable time may be lost in the employment of drugs, which, if given to a cure by the abstraction of blood, might, in some cases, have saved lives, not susceptible of rescue by the same means when employed at a later period. From all I could gather, in repeated conversations with Dr. Rasori, he seemed indeed to be sufficiently alive to the importance of blood-letting; and I should make this remark with more hesitation, if that physician did not seem to me to stand alone among his countrymen for boldness and decision. Throughout the south of Italy, wherever I had the opportunity of direct observation, I found the blood taken, in inflammatory disease, less in absolute amount than is now usual among English physicians; and it is taken by smaller and more frequent bleedings. It is not therefore improbable, that when the mind has been pre-occupied by another idea, the same error may have occurred in the practice of more efficient physicians.

Of the contra-stimulant theory, the part which seems the least perfectly developed, and concerning which there is the least unanimity, is that which relates to the action of particular drugs; indeed, there is no branch of medical inquiry more contradictory and obscure among the physicians of all sects and all countries: of this, the endless disputes on the action of digitalis, in the medical writings of the British practitioners, afford a striking instance. Among the contra-stimulant remedies are included, by some persons, all the mineral remedies, various bitters, and (mirabile dictu) the blistering-fly itself. Rasori totally rejects from the materia medica the class of diuretics, whose action he considers wholly contra-stimulant: for, he says, not only do dropsies, curable by such remedies, likewise get well by the use of other contra-stimulants, not diuretic; but these very diuretic medicines do not provoke the same discharges in other diseases; while, on the other hand, opium and ether produce diuretic effects in dropsies, which arise from a real debility of the living fibre. From these facts, judging empirically, we must come to the most opposite and contradictory conclusions: but, in adopting the contra-stimulant doctrine, the philosophical induction is, that diuretics, and other specifics for dropsy, derive all their efficacy, and their supposed specific action, from their relation to the general diathesis or constitutional disease.

One of the most obscure parts of the new medicine is, that which distinguishes between the irritative and contra-stimulant effects of drugs. Several of the contra-stimulant drugs are, in certain doses, of the most acrid and irritating activity: (not to mention cantharides,) nitre, the bitter purgatives, and most mineral substances, excite, when taken in over-doses, immense irritation, followed by severe and fatal inflammation of the intestinal canal. Upon the subject of irritation, the theorists have run into the nicest distinctions; one asserting the existence of a peculiar diathesis, produced by irritative stimulation; while another denies the existence of such a diathesis. Some persons, again, consider the irritation as a phenomenon sui generis, removable only by the removal of the cause; while others hold the first effect of irritation and of all pain, to be purely contra-stimulant. In all this logomachy, there seems to be more intellectual subtilty than practical observation; and perhaps also no little precipitation in the classification of particular

particular drugs. It is difficult to conceive irritation in any other light than that of direct stimulation, since, when carried to a certain point, it always induces inflammation. That irritants therefore should be at the same time contra-stimulants, is difficult to understand. Whatever gives a violent shock to the nervous system has a temporary power of diminishing, and in some cases of even totally extinguishing, the vital energy. Blows on the stomach, ruptures of ligaments, extensive injuries of any important viscus, are followed by a very marked condition of contra-stimulus; but this peculiar affection of the nervous apparatus has nothing to do with the power which a drug may hold over the circulation. In all cases of poisoning, where the coats of the stomach are either chemically or physiologically destroyed, this state of contra-stimulus precedes the accession of that inflammatory fever which accompanies the effort to cast off the slough; but it by no means follows, that the collapse is the direct effect of a specific property in the drug administered.

Dr. Clarke (in his observations "On the Climate and Diseases of the South of France and Italy," a work which may be safely consulted by those invalids who are exiled in search of health) has most justly remarked, that the sciences in general, and medicine in particular, are upon a much more respectable footing in Upper Italy, than on the other side of the Apennines; and the former is precisely the territory of the contra-stimulant practitioners. To their bold administration of powerful remedies, the profession in general is largely indebted, more especially for their more philosophic use of digitalis and of antimony, which, notwithstanding all that has been written in England, had not been before rescued from a very gross empiricism. The use of laurel-water and the prussic acid is another benefit derived from this source, though it is probable that the French will obtain the chief merit of this application of a most deadly poison to the purposes of medicine. To those English practitioners who have returned upon the traces of Sydenham, and have disentangled themselves from the learned errors of the last generation, the contra-stimulant writers of Italy will prove highly interesting, by the confirmation they afford to views entertained at home, upon separate and independent grounds of reasoning and observation.

When the contra-stimulant system has been noticed, there remains but little to be said of the state of medicine in Upper Italy, where the merits of individuals is rendered less available by institutions and by combinations of circumstances, more or less fatal to all national prosperity. One of the principal misfortunes attendant upon the political divisions of this ill-fated country is, the establishment of petty universities, laden with obscure professors, whose exertions meet with no adequate reward, either in fame or money. These teachers educate gratuitously, and consequently produce a greater supply of practitioners than the demand can employ. This facility of instruction and insufficiency of remuneration operate to invite the lower classes into the career; and, if persons of more adequate pecuniary means attach themselves to the profession, and are desirous of seeking education in foreign universities, they are restrained by the restrictive laws, which confer licences to practise only on those who have graduated at home. Pavia, Padua, and Bologna, which still preserve an astonishing zeal for science, and which afford great facilities for the student, would abundantly suffice for the necessities of the north of Italy, but municipal jealousy operates very generally to exclude the subjects of other states from profiting by their propinquity to these seats of learning. Florence, Sienna, and Pisa, Modena, Parma, Genoa, and Turin, have each their schools of medicine, all costing the public large sums, and all more or less unequal to maintain professors of high talent or extensive acquirements."

The most recent particular we have to mention in the medical practice of Italy, is the administration of black

pepper as a remedy for agues, by Dr. Louis Frank, first physician to the dukes of Parma. A man, having tertian fever, had been treated, without benefit, by cinchona, opium, and muriate of ammonia; when, after the lapse of three months, he was advised, by some gossip, to take, twice a day, six grains of whole black pepper; he rapidly recovered his health. Dr. Ghighini, physician at the court of Parma, being in a country where agues prevailed every year, more or less, from the influence of stagnant waters, tried the efficacy of the medicine, and with the most favourable results. Dr. Frank has treated about 130 patients, in the greater proportion of whom the fever disappeared after the second or third paroxysm from the time when the remedy was first administered. From six to ten corns of the pepper (given to the patients as pills) were generally administered twice a-day. But very few relapses occurred.

SPAIN and PORTUGAL.—This is a short and barren section. The Spaniards have not lately been in a situation to cultivate the sciences, or literature of any kind. Long oppressed by bigoted rulers and despotic governments; struggling for liberty, and not knowing how to use it; and even now torn by intestine commotions, while employed in the most laudable pursuits; we have little information to expect from such a source. Yet we begin to hope for better times; and it has given us great pleasure to be informed, that a medical magazine, to be published every ten days, has been announced at Madrid, under the title of "Decadas Medico Cirurgicas." The objects of this periodical miscellany are—1. To inform the profession and the public of all the discoveries and interesting facts relating to medicine and surgery in Spain and in foreign countries. 2. To give an impartial account of modern theories, medical doctrines, &c. 3. To convey intelligence respecting all endemic diseases. 4. An account of extraordinary cures. 5. Miscellaneous queries and observations; with an analysis of medical publications appearing in Spain, and of the more important ones published in foreign nations.

A publication of this kind, tending to invite discussion, will, we think, be of infinite service to the medical cause in Spain. In the mean time, a very singular retrospective decree of the Faculty of Pharmacy in Madrid has lately been issued, by which every person practising pharmacy, or keeping a chemist's shop, who has not reached the age of 25 years, is enjoined to attend courses of lectures at the Royal College up to that age, with a view to his being re-examined previously to obtaining a fresh license to practise.

The following is the account given by Mr. Broughton, a surgeon, in his "Letters from Portugal," of the miserable state of pathology in that country about the year 1814.

"In my professional capacity, it has fallen to my lot to visit the poorest and most distressed classes; and, miserable as the state of this order of society appears to be upon a casual view of it, it is yet nothing when compared with that which is furnished by a more intimate acquaintance with its evils. Often destitute of hospitals, and without the aid of medical men, the unfortunate victims linger in the most loathsome and deplorable state which poverty and disease can inflict, and are consequently doomed to drag out their miserable existence a burthen to their families and to themselves. I found the little assistance I was able to afford them was eagerly sought, and most gratefully accepted; and, as the intelligence of the opportunity of relief spread abroad, the numbers of the afflicted, and the excess to which their various diseases had reached by neglect, astonished me. Whenever I met with medical men, I uniformly found this science limited to a degree that almost exceeds belief. Their study is chiefly confined to the perusal of a few old authors, whose practice among us has become obsolete; and they have consequently few conceptions beyond the dogmas of the latter. The surprise they evinced at the surgical

surgical apparatus of an English medical officer, and at the commonest operations, proved the lamentable state of the whole profession in Portugal.

"The people in general, as well as the medical practitioner, are in perpetual terror of infection; for they are wholly ignorant of its nature, and the most common ways of preventing it. Even to this day the Portuguese cherish an invincible prejudice against the use of mercury, in cases where we know of no other remedy to check the progress of disease. Their prejudice against vaccination was equally strong; but, by the interference of the legislature, it has been introduced; and the arrival of vaccine matter from England is occasionally announced in the *Gazette*, and inoculation performed gratuitously."

In viewing the state of medicine in GERMANY, we have much to admire; for, whether we consider the Germans as minute anatomists, patient investigators of diseased function, or as surgical operators, they will deserve high encomium. In many grand pathological points, we discover a great similarity between their opinions and our own. And this coincidence is the more satisfactory, because it occurred at a period when the horrors of war prevented a free communication with the continent. We perhaps cannot give a better account of the German medical doctrines than by a short history of the present state of their numerous universities, the most distinguished professors attached to them, and their respective doctrines.

It is well observed, by an amusing modern writer, (An Autumn near the Rhine, 1818.) that nothing can be imagined more striking than the contrast between an English and a German university. "In the former, the Gothic buildings, the magnificent colleges, the noble libraries, the chapels, the retired walks, the scholastic grace of the costume, are all so many interesting indications of the antiquity, the munificence, and the dignity, of the institution. But the constitution of a German university has necessarily no monument of architecture, no appendage of dignity, scarcely any decent building belonging to it. The *Universitäts-Gebäude*, or public buildings, containing the library and the lecture-rooms of the professors, barely come under this last description. Indeed, in most universities, the lectures are delivered at the professors' houses; the university being, in fact, only a place where there is a good library and lectures delivered to those who are willing to attend them."

There were, at one time, between thirty and forty universities in Germany. The events of the last twenty years have considerably diminished that number. Viewed as literary institutions, the Protestant Universities, which chiefly occupy the north of Germany, are undoubtedly superior to the Catholic Schools; and, in the words of Madame de Staël, "*toute la gloire littéraire de l'Allemagne tient à ces institutions.*" We shall therefore begin with them; and, without enumerating all, it will be sufficient for us to state that the most celebrated are Gottingen, Halle, Berlin, Jena, Leipzig, and Heidelberg.

They are divided into four faculties; Divinity, Jurisprudence, Medicine, and Philosophy. Each department has several professors. The prince of the country in which the university is situated, is nominally the rector; while a pro-rector, chosen annually from among the professors, exercises all the powers and privileges of head of the university. The professors are appointed by the crown, and receive a small annual salary. Their principal emolument is, however, derived from the students who attend their lectures, and from their literary labours. Perhaps, no class of men concentrates within itself so much talent, industry, and devotion to science, as the German professors. The welfare and prosperity of an university are generally of so much consequence to the state in which it is situated, and that prosperity depends so entirely on the popularity of its professors, that they are always selected from among those who have by their

talents and industry rendered themselves conspicuous in their respective branches of study.

The constitution of the German universities would at first sight appear very favourable to the students. By decrees, even more ancient than the Reformation, these constitute a free body in the state; and, except in criminal cases of great magnitude, the ordinary police of the country has no power either of punishment or control. They are in fact only subject, if subject it can be called, to the University Police, consisting of one or two old men acting under the orders of the pro-rector. There is no gradation of rank or birth, distinctions of country are *professedly* abandoned, and poor and rich are on the same foundation, merit being the sole distinction. So far all is well; but the evils which spring out of this system counteract many of the advantages. In Germany every one goes to the university. To practise medicine, a regular university-education is indispensable; while those destined for the army or the law must qualify themselves by two years' residence at some university. They generally therefore enter young, and at 16 or 17 are transferred from the control and discipline of the parental house to a state of the most unbounded licence.

No peculiarity of dress is enjoined by the university; but a student is known all over Germany by his loose frock, hair flowing down his shoulders, and cap bearing the colour and emblem of the country of which he is a native. The students have a peculiar and secret association, known by the name of *Landmannschaften*; that is to say, the natives of each country unite themselves into a society, and bind themselves to observe all the laws and enactments which may emanate from it. The particular objects which these societies have in view are the preservation of the students' rights and privileges, the protection of their weaker countrymen, and the regulation of *duels*, one of the most important considerations of a German student. These societies are prohibited by law, but sanctioned by custom.

It is long since enlightened observers have seen and regretted, that in more than one respect these institutions have departed from their primitive character, and the spirit in which their illustrious founders created them. Carried away by the torrent of the age, many academic professors have mistaken the real object of the universities, and have given them an arbitrary and frequently pernicious direction. Instead of forming the students entrusted to their care for the situations they were destined to occupy in the state, they have pursued the phantom of a cosmopolitan education, have filled with dangerous political reveries minds equally accessible to truth and error; and have inspired them, if not with hostile dispositions, at least with a decided aversion for all that they see established around them. The result has proved as detrimental to the interests of the state as to those of the rising generation; it has created in the latter the pride of imaginary perfection, and the pretension of re-establishing social order on the basis of some impracticable system; and many young men who were sent to learn have constituted themselves the preceptors and reformers of their country. This dangerous change did not escape the notice of the governments: they had long observed and deplored it; yet their anxiety to respect the freedom of instruction, so long as it did not directly compromise public order, deterred them from promptly opposing the progress of evil by efficacious remedies. But at the present time, when, under the benign influence of general peace, and the auspices of princes sincerely engaged in securing future happiness to their people, we were authorized in supposing that the universities would again be placed within those boundaries in which they had formerly so honourably served the cause of their country and of humanity; the most hostile attacks against the principles on which repose the peace and security of Germany have issued from those very universities; for, either through
excessive

excessive blindness or culpable connivance on the part of the professors, the noblest faculties of youth have been perverted in favour of extravagant projects and enterprises, which, though impotent or absurd, are not the less reprehensible and criminal, since these fatal delusions have given rise to crimes dishonourable to the German character. The late melancholy events at Gottingen will fully justify us in the above remarks.

In most of the universities there are what are called *freitische* (free tables) for the poorer students. Independently of those provided by the government, individuals often leave lands or money to support a certain number of these *freitische*. A student appointed to one of these, receives his dinner daily at his own house. By this excellent plan, the feelings of the obliged are spared, and the intention of the donor fully carried into execution, by the support given to merit in distress. Besides the *freitische*, there are *stipendium*, or grants of money, appropriated to the same purposes; bursaries or exhibitions. The students reside in lodgings, and dine either at a table d'hôte or have their dinner sent them from an eating-house. Boarding is quite unknown.

Among the advantages which the students enjoy, we must particularly notice the cheapness and independence of living at the universities, the low price of books, and the liberality of the public libraries. The general price of lodgings vary at different universities: at Gottingen, which is by far the most expensive, the price of two rooms may be quoted from three to eight louis d'ors for six months; dinner from one to two louis d'ors per month. Every thing else is reasonable in proportion.

No student is so poor as not to possess a library. The difference in the price of books is very great, and yet there is no class of men more generally opulent and respectable than the German booksellers. By contenting themselves with a moderate profit, the books bear a price which puts them within the reach of almost every student. In Great Britain, students are obliged to content themselves with elementary books, and to borrow others from public libraries. Independently of the difficulties attending the delivery of works in these institutions, it is no small inconvenience to the students not to have his books at all times, and to be able to study at his own time and in his own way. We are well aware of the difference of price in paper and printing in the two countries, but we contend that they are not such as to justify the difference in price; and, if they did, the German booksellers have another drawback: no sooner does a work of merit make its appearance, than a pirated edition is published in a neighbouring state: and yet, with all this, books are one-half or two-thirds cheaper. Thus Blumenbach's Physiology sells in Germany at about 5s. 6d. The translation of the same volume in London, a book of the same size and nature, (and, as books go here, a cheap book,) sells at 12s. This is a favourable instance, for we could show cases where the proportion is as 3s. 6d. to 15s.

The public libraries in Germany are better conducted and more useful than ours. They are not so much composed of old and curious books, as of works of general utility. They are perfectly open to the students, nor did we ever hear of a book being purloined or defaced.

There is another advantage which the schools of Germany afford—a very considerable facility of dissection. While our present restraints upon the study of anatomy exist, so that it cannot be pursued to any useful extent, or at any reasonable expense, nor without exposing the student to the vengeance of the law, or the dread of violence from popular prejudice, it is in vain for us to hope to rival the Germans in the study of elementary, much less of minute, anatomy. The smallest school in Germany is better provided with subjects than any of our universities or even hospital-schools, and this without violating the feelings of any one. The rooms are in general supplied by the dead bodies of those who die in the hospitals,

and who have no friends or relations to claim them. We rejoice that this subject has not escaped the notice of one whose eloquence can hardly fail of success when the object is, as in this case, to benefit the cause of humanity and improve the profession of which he is so great an ornament. See the Hunterian Oration for 1819.

In recommending the schools of Germany to such of our countrymen as may visit the continent, we must be understood as addressing ourselves only to such as view the profession of medicine in the light of a liberal and enlightened science: to others the appeal would be in vain. The former we must exhort not to be deterred by the manner in which Germany and her schools are often mentioned in this country, and that too by men whose reputation makes them an authority. They speak of the Germans as illuminati, as proficient in animal magnetism and nothing else, as mere book-men, &c. &c. but neglect to observe, that no country has adorned the profession of medicine with so many eminent men, or laboured more assiduously in her cause, than Germany; the land of Hoffman and Richter, Meckel and Walter, Wrisberg and Zinn, Schmidt and Hildenbrand, the land which still boasts of Franck and Soemmerring, Blumenbach and Beer, and Springle and Hufeland.

The German student enters the profession much better prepared than the generality of our students. A thorough knowledge of the classics, and some acquaintance with natural philosophy, are considered indispensable; while most of them possess sufficient literary acquirements to feel the dignity and importance of the profession upon which they are entering. Their diligence is unwearied and universal.

One great cause why the productions of the German school are so little known or valued in this country, is the ignorance of the German language which is so generally prevalent. The war having suspended our intercourse with the Germans, our knowledge of their labours has been derived from French translators, the very worst medium through which it could have been conveyed. It cannot however be denied that, with all the zeal and industry which the Germans have displayed, the benefit derived from the application of their vast learning to practical purposes (whether in our profession or in other sciences) has not been equivalent to what might have been expected from their acknowledged talents and unwearied industry. The fault has not lain with them, but with the peculiar constitution of their country. Divided into a number of small and inconsiderable states, which were bound by no common union and cemented by no common feeling, its general resources were weakened, and too few opportunities afforded for putting scientific discoveries to the test of practical application. Discoveries often lay dormant, or, in the struggle to make them known, were seized by nations more happily circumstanced, and their real country and author forgotten. Lessing has exposed this feeling in one of his charming fables so happily, that we shall give a translation of it to our readers. "A hen, which had become blind, continued to scratch together her small heap of corn. Little did it avail the industrious fowl; for another hen, which was not blind, followed her steps, and enjoyed the fruits of her labour. As soon as the blind hen had laboriously scratched up a grain, the other carried it off. The industrious German collects the knowledge which the lively Frenchman puts to use."

The most celebrated of the Protestant universities of Germany is that of Gottingen. This university was founded by George II. when Elector of Brunswick and Luneburg, on the 7th of December, 1736. The imperial licence had been granted by the Emperor Charles VI. so early as January 1733, and lectures were first delivered in October 1734. The university was solemnly opened on the 17th of September, 1737, and named after its founder, the "Georgia Augusta." The celebrity which this university has acquired in so short a period of time, is to be

ascribed to the many eminent men it has ranked among its teachers. Of these we need only mention Haller and Richter, Zinn and Roderer, among its former, and Blumenbach, Oslander, Langenbeck, and Himly, among its present, professors, to prove that its title to be ranked among the first medical schools, is as just as the claims which it undoubtedly establishes, on the merits of so many illustrious characters in other departments, to be called the first literary and philosophical school in Germany.

In regard to the course of study to be pursued to entitle the student to a diploma, there are no fixed regulations here, nor, indeed, in any of the Protestant universities of Germany. All that is required is, that the candidate should be able to undergo his examination. No questions are asked respecting the duration of his studies, or the university where he has acquired his knowledge; but, in general, it requires three or four years previous study to be able to pass the examination, which is strict and fair. It embraces all parts of theoretical and practical medicine, including botany and chemistry; and a thesis in Latin is subsequently defended before the university. The expense of graduating is about 40 louis d'or, and the examiners are the members of the medical faculty, generally the four eldest. Medical students generally spend three or four years at Gottingen, graduate, and then complete their studies in the hospitals of Vienna or Berlin. It is, in fact, chiefly a literary medical school, and, the opportunities of dissecting excepted, bears the same relation to Vienna and Berlin, as Edinburgh or Glasgow does to London. The opportunities for study are unequalled. The free and unshackled use of a most splendid library; the excellent lectures of its celebrated teachers, and these at a very moderate price; the peculiar situation of the university, in a small town, from which public amusements and other temptations to idleness are banished, where there is little or no general society, and where the general tone and habits are purely literary, are advantages which few universities in Europe combine.

In 1815, the number of students at Gottingen was 860; of these 604 were foreigners, (i. e. not Hanoverians,) and 146 medical students:

In 1816, there were	1132;	of these, 745 were foreigners,	234 medical.
1817,	1160	710	223
1818,	1158	686	210

An unfortunate disturbance which broke out among the students in 1819, had greatly reduced the number; but we are happy to learn, that it is rapidly regaining its former numbers, and that the storm which threatened its entire destruction, has purified it of many things which obscured its advantages.

The salaries of the professors depend on government, and are not generally known. They vary according to the merit and popularity of the professor. Thus, a young professor may receive only 400 or 500 dollars, perhaps less; while 1500 are given to tempt a man of established reputation to come and settle in the university. We believe that no professor in Gottingen has more than 1500 dollars; few so much.

There are three hospitals in Gottingen: 1. A medical and surgical hospital, under the care of professor Himly. 2. A surgical hospital, under professor Langenbeck. 3. A lying-in hospital, under professor Oslander. There is also a botanical garden, a museum, chemical laboratory, physical apparatus, and a public library. The lectures of the professors are all delivered in German; and here we may observe, that in no part of Germany is the language better spoken than in Gottingen, and that to foreigners it affords the advantage of a most excellent master, professor Benecke, professor of the ancient German, and one of the first Teutonic scholars now living. The terms of study are called Semestres; the one commences on the 26th of April, and lasts about five months; the other some time in October. The lectures are delivered

every day, except Sunday. The fee to each course is generally a louis d'or, and never more than two. Besides the public lectures, the professors are in the habit of giving private instructions to one or more pupils. These are called *privatissima*. Professors Himly and Langenbeck each give *privatissima* on the operations of surgery, and on diseases of the eye. Three or four pupils generally unite. The professor commonly receives ten louis d'or for a *privatissimum*. There are also several private lecturers, but none of equal eminence with the professors.

The library is one of the most splendid and useful in the world, and occupies a large and convenient building in the centre of the town. It consists of upwards of 200,000 volumes. It possesses few manuscripts or curiosities; but aims at general utility. The books occupy nine large halls, and are arranged in a systematic order. In one department are the theological, in another the medical, books, &c. &c. These are again divided; and under the heads of neurology, midwifery, ophthalmology, jurisprudential medicine, &c. &c. the student finds every thing which has been written on the particular subject of his studies. The last alphabetical catalogue consists of 180 volumes folio. There are generally about 3000 books in circulation among the students. To keep pace with the progress of knowledge, about 5 or 6000 dollars (1000l.) are annually expended in new works. These funds are derived from what is called the cloister-fund; the produce of the cloisters and convents which were suppressed at the time of the Reformation, and which in Hanover have always been devoted to the support of libraries and charitable institutions. This sum would not, of course, be sufficient for the support of this noble library, were it not to receive many donations from authors. The learned societies are in the habit of sending their Transactions; among these we observed the name of the Royal Society. His present majesty, while regent, presented a most splendid collection of books to this library.

Although the Anatomical School is professedly under the charge of the professor, professor Hempel, it owes its chief advantages to the diligence and celebrity of the professor of surgery, Langenbeck. A building was indeed devoted to anatomical pursuits as early as 1738, but in a literary university we seldom find that much attention is paid to practical anatomy. The Surgical Hospital is a large and commodious building, and has been fitted up in a very judicious and useful manner. It is devoid of architectural ornament; but is placed in an open garden, and well ventilated. It contains two lofty wards, adjoining each other; the one for men, the other for women: each ward contains twelve beds. At the one extremity are the nurses rooms, the other leads to the operation-room, which is built in the form of an amphitheatre. Two small wards, attached to the operating-room, are devoted to diseases of the eye, each containing four beds. Under the Operating Theatre on the ground-floor is the Surgical Auditorium, and adjoining it a most splendid collection of surgical instruments and bandages. Patients are received into the hospital without the payment of any stipend, or fee. The reputation of this hospital being very great, patients often come a distance of fifty or one hundred miles to it; but only curable and instructive cases are admitted. By these means no semestres pass over without affording the students the opportunity of seeing almost all the important operations.

The Surgical Hospital is attended by from seventy to eighty students, who are divided into *practicanten* and *auscultanten*; i. e. practitioners and listeners. The former consist of those who have attended a previous course, and now take in rotation the charge of a patient. On doing this they are obliged to give an account of the disease, and answer all questions which may be put by the professor respecting the anatomy, pathology, and treatment, of the patient. Professor Langenbeck in his lectures on surgery, which he delivers daily from one to three o'clock, gives

gives half his course in a semestre. They might more properly be called anatomical and surgical lectures; for the professor first demonstrates the anatomy of the different parts in their healthy state, before he proceeds to speak of them in the various forms of disease which require surgical assistance. The Anatomical Theatre is annually supplied with about eighty bodies. During the winter these are used for anatomical demonstrations, and in summer are devoted to the performance of surgical operations. The anatomical demonstrations and surgical lectures are generally attended by 120 or 130 students, of these about forty are *praeparanten* (dissectors), and assist in the making of anatomical preparations.

The foundation of the Surgical Hospital is entirely due to professor Langenbeck. In 1807, on his representation, a certain sum was appropriated to its support from the cloister-fund. In 1808 the professor built the present hospital, which is still his own property, the Hanoverian government paying him a yearly rent for it. The beautiful collection of surgical instruments also belongs to the professor. Besides those which he has himself collected, he purchased the collection of Heister, which, in an historical point of view, is probably unique. The whole as it now stands is undoubtedly the first in Germany. It comprises all the instruments that have ever been used in surgery from the earliest days to the present time.

Professor Langenbeck, as a practical surgeon, is unrivalled in Germany. We have seldom seen a man so enthusiastically devoted to any pursuit, or who brought to the profession of surgery more capability of excelling in it. He has been known for some time as an excellent anatomist, but it was his situation in the army that brought him into notice as a surgeon. He particularly distinguished himself at Waterloo, where he held the office of surgeon-general to the Hanoverian army, by his indefatigable zeal, brilliant operations, and the excellent arrangement of his department. He not only acquired great distinction, but is said to have enriched himself during the campaign. It is much to his credit that all these circumstances have rather contributed to increase than slacken his zeal and exertion. He is unwearied in the pursuit of his favourite studies. Although he has a very considerable practice, and lectures five hours every day, he is in the dissecting-room before it is light, and devotes to it every moment which he can spare. He has founded a museum, chiefly formed from the labours of himself and pupils, and which contains some very beautiful preparations. He is also the author of a periodical work, and has written some other books. Professor Langenbeck however, is more a practical than a book man. His time has been more spent in the dissecting-room than the library, and he is consequently not so well versed in the literature of surgery as some of his countrymen who have probably never handled a knife. As an operator, he is unrivalled in his own country, and we are not aware that he is excelled in any. He is clear and decisive in his judgment; rapid and elegant in his operations.

Lectures on the practice of physic are delivered every morning at ten o'clock, by professor Himly, in an auditorium connected with his dwelling house, and are generally attended by upwards of one hundred students. Two semestres are occupied by the course, the term of lectures therefore corresponds very nearly with those of Dr. Gregory of Edinburgh. Professor Himly has printed his "*Lehrbuch der praktischen Heilkunde*" as a text-book. This work is divided into two sections; the first contains general nosology, and the second treats of *materia medica*. The latter section is really excellent, but the first appears, at least to our unphilosophical minds, quite useless. If the hearer can separate the practical matter of Himly's lectures from his theoretical views, these lectures may be pronounced very good and useful. He is too much attached to a system; but his lectures contain in general a full account of what is

known on the subject, and display great learning and research. Professor Himly's clinic takes place from eleven to twelve every day. It is connected with a small hospital which is under his direction, founded by some inhabitants of Gottingen, and which derives its support partly from the interest of funds left for its maintenance, and partly from the cloister-fund. There are about thirty beds in it. The principal part of the sick at this clinic are out-patients.

Professor Himly has not of late published any thing but his "*Journal der Ophthalmologie*." His text-book is not published, being merely given to his students.

Lectures on physiology, comparative anatomy, and natural history, are delivered, the physiology at eight o'clock in the morning, comparative anatomy from three to four, and natural history at five in the afternoon, by the celebrated Blumenbach, a name respected and venerated wherever it is known. Blumenbach was born in the year 1752, at Gotha in Saxony, of parents who were in moderate circumstances. He commenced his studies at Gotha, from whence he went to Jena, where he remained two years and a half, and then came to Gottingen to study, under Haller, Richter, and Roderer. He took his degree as M.D. in 1776, at Gottingen, and then proposed to return to Gotha, with the intention of pursuing his profession; but his dissertation "*De Generis Humani Varietate*," made so great a sensation, from the novelty of the subject, and the excellence of the execution, that on the same day that he received his degree, the University named him Extraordinary Professor of Natural History. Having thus obtained a situation which the natural modesty of his disposition rendered quite unexpected, he assiduously devoted himself to the study of natural history; with what success, his numerous works, and the splendid benefits he has conferred on science, sufficiently testify. His cabinet of natural history is one of the most splendid in the world. It is entirely collected by himself, and forms, perhaps, the best monument of the esteem in which he is held, for he has never purchased a single article in it. It is kept in his dwelling-house, and occupies five rooms. Nothing can be more inappropriate than its situation, or more disorderly than its arrangement. The most valuable preparations are seen out of their cases lying about. There is no systematic arrangement in any part of it; but this is not to be wondered at, if we consider the progressive manner in which this collection has been formed, and the age of its possessor. Many would be happy to arrange it for him, and Dr. Wernekink has done much towards reducing the chaos to order; but Blumenbach does not like any setting-to-rights in his museum.

The part of his cabinet which attracts principal attention, is his unrivalled collection of human skulls. It has been visited not only by most men of science, but by all the crowned heads of Europe. On this subject Blumenbach says, "If we wish to make great people follow us, and not we them, it is only necessary to make a collection of skulls." This collection is sufficiently known by Blumenbach's work "*Decas Craniorum*." The most valuable thing in it is a Grecian skull, which is at least 2000 years old, a present from his pupil the Crown Prince of Bavaria. It is in a perfect state of preservation, and constitutes a most beautiful specimen of the beau ideal of the skull. The next in point of value are the skull of an ancient Roman, and that of a cannibal (*Bataku*), which he received from the prince of Neuwied. Nothing can be more interesting than to view these three skulls, placed as they are by one another, and to compare their appearances with the moral differences of character of the nations to which they belong. In an anatomical point of view, the best-preserved skull in the collection is that of a negro. On the same shelf stands the beautiful skull of a Georgian female, and some very rare skulls of the inhabitants of Nukahiva, a present of captain Krusenstern. There is also a remarkable skull of a Cretin, which produces

duces an indescribable feeling of horror, from its close resemblance to that of an ape. We have not room to dwell upon individual parts of this collection; but shall merely remark, that it derives additional value from the care taken to authenticate the accounts given of its contents, and the skulls are preserved in the same state in which they were originally found. Yet Blumenbach, notwithstanding his collection of skulls, is not a craniologist. Spurzheim was excessively anxious to have Blumenbach's opinion on his craniological system, and tried many expedients to elicit it in vain. At length he attacked Blumenbach on his vulnerable side, by bringing him a beautiful skull as a present. This was irresistible. The collector struggled between his love of truth and his extreme fear of wounding the feelings of the craniologist. He looked at the skull, and exclaimed, "My dear doctor, in your system there is much which is new, and much which is true; but the new is not true, and the true is not new."

Blumenbach's collection of fossil bones is one of the most beautiful in Europe. Notice is particularly attracted to the bones of the bear, which exhibit the same proportion in point of size to the bear of present times, as the calf of one month to the ox of two years. There is also a very fine collection of minerals; and another, no less valuable, of skeletons, in which that of a lioness is very remarkable. The preparations in this cabinet, illustrating the growth of the elephant's teeth, are unique. His wet preparations are invaluable, of which we shall only say, that they are described in his "Abbildungen Natur-Historische-Gegenstände." We may, however, notice as interesting, the fœtus of a porcupine, and a crocodile escaping from the egg. We must not forget to mention his beautiful collection of drawings, descriptive of all nations of the earth; and an invaluable assemblage of curiosities which have no particular relation to science.

The following is a list of his principal works: 1. *Introductio in Historiam Med. Litterariam*; Gottingen, 1786. 2. *Synopsis System. Scriptt. quibus inde ab inaug. Acad. G. Aug. 1737 usque ad 1787, discipl. suam augere stud. Profefs. Med. Gott.* 1788. 3. *Med. Bibliothek.* 3 Bde. 1783—95. 4. *Institutt. Physiöl.* 1787. 5. *De Vi Vitali Sanguini deneganda*; 1788. 6. *Geschichte und Beschreibung der Knochen*; 1786. 7. *Ign. v. Born; Zwey Abhdl. üb. d. Nutribus-kraft*; Petersburg, 1789. 8. *De oculis Leucaethiopum et iridis motu* Comment; Gottingen, 1786. 9. *De Generis Humani varietate nativa*; 1776. 10. *Collectio craniorum divers. Gentium*; 1790. 11. *Ueber d. Bildunftrieb u. d. Zeugungsgeschäft*; 1781.

Notwithstanding his incessant labours in his study and his cabinet, his three lectures a-day, and the frequent visits he is receiving from strangers, nothing can be more affable or kind than his behaviour to students. He devotes to them the greater part of Sunday, and the evening of nearly every day, from six to nine o'clock, when he receives a certain number at tea. To the English he is particularly attached, having long been on intimate terms with sir Joseph Banks, and many other distinguished characters. He speaks English perfectly, and possesses all the English works of great merit. He is equally well-informed in the other departments of knowledge; his acquirements seem indeed to be universal.

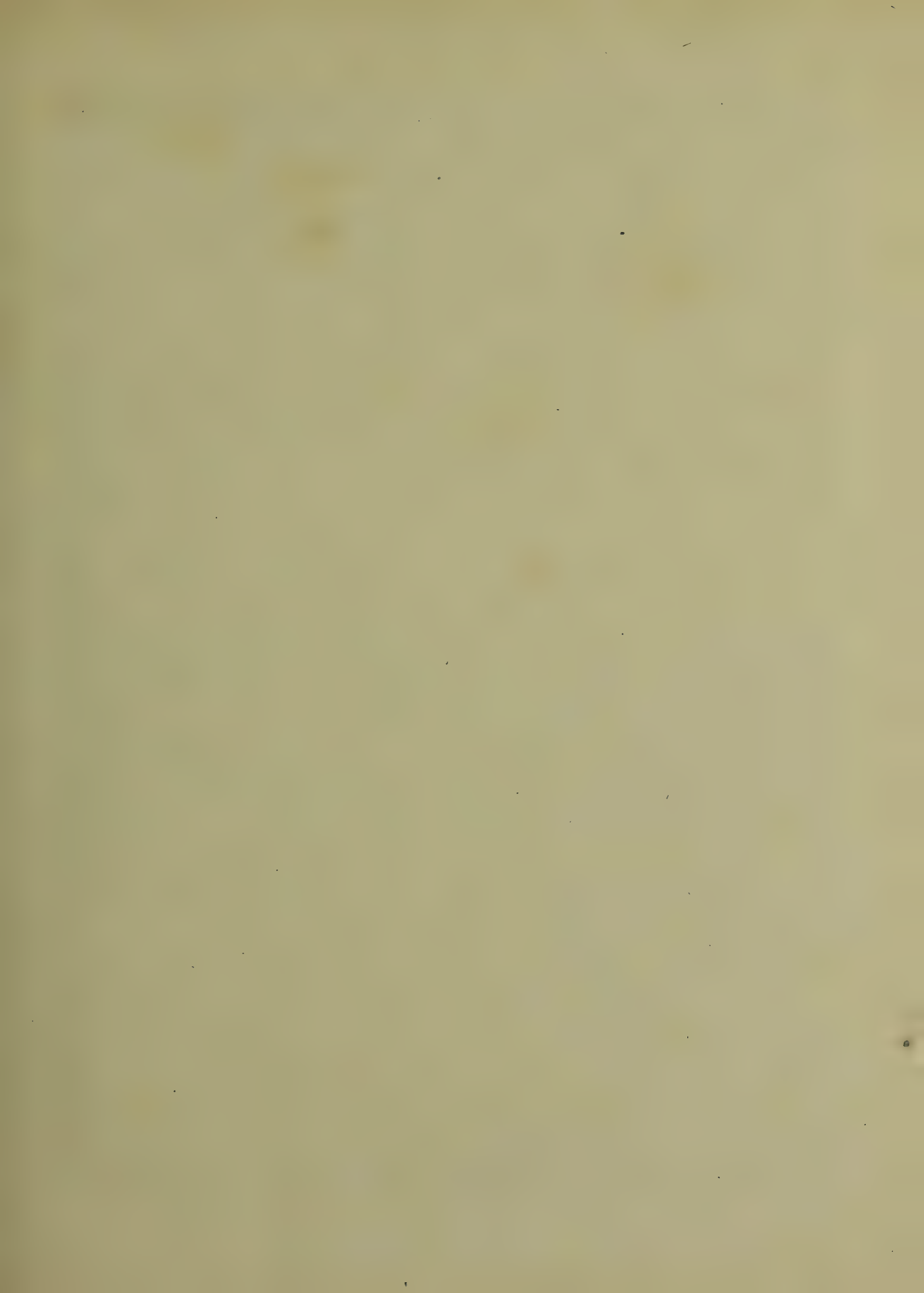
Lectures on midwifery are delivered by Professor Oslander, and are perhaps among the best ever heard. They may be entirely depended on, for they are founded on a long course of accurate observation. His text book is entitled "*Oslander's Lehrbuch der Entbindungskunst*," which is perhaps the best work on the subject. Professor Oslander gives two courses in the year, each of which lasts about five months; these are combined with chemical instruction in the hospital. The Lying-in Hospital is the finest building in Gottingen, and is admirably adapted to the purposes for which it is intended. Besides the accommodation for patients, it contains apart-

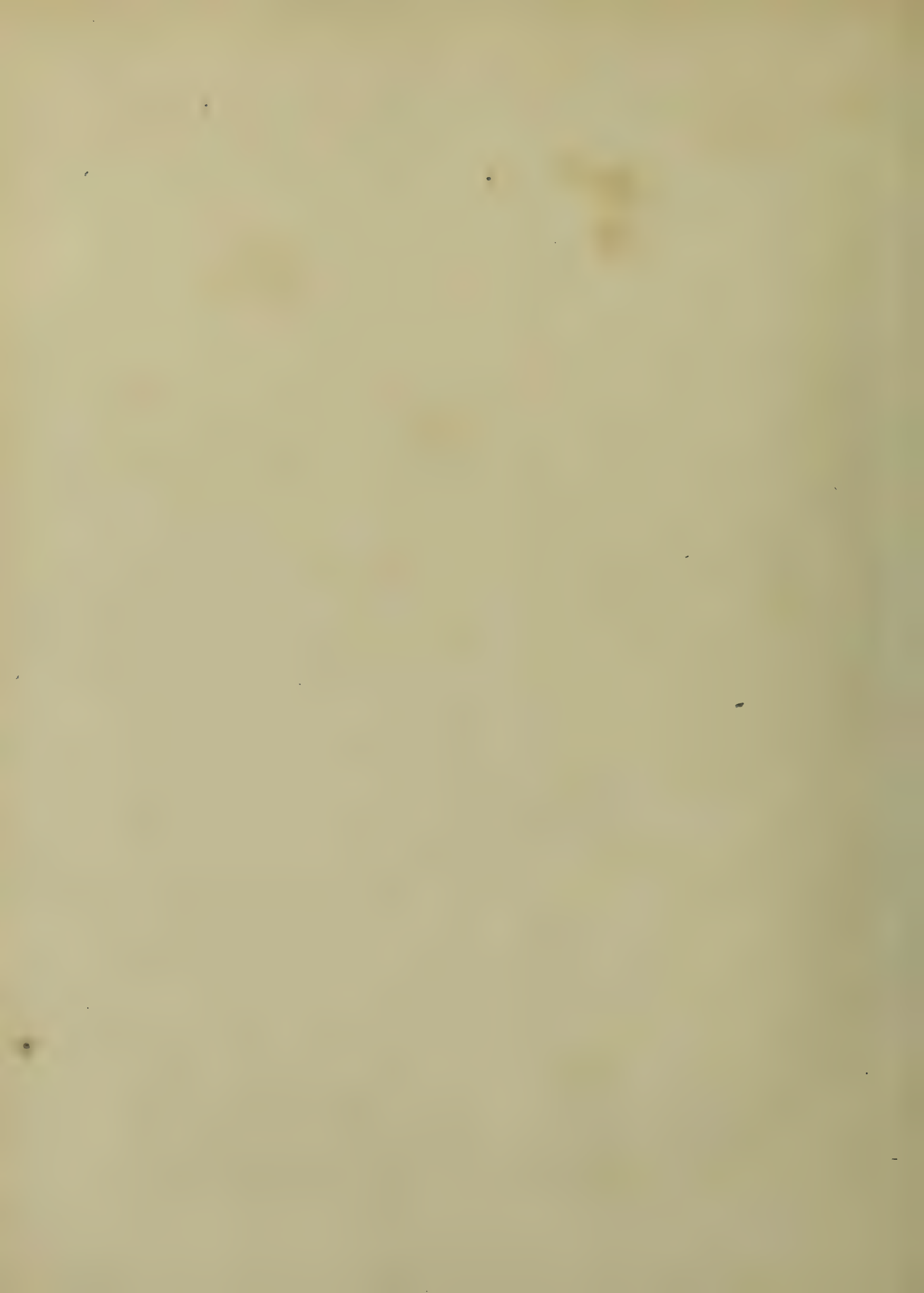
ments for the professor, his beautiful cabinet, and an appropriate lecture-room. Nothing can form a stronger contrast to the chaos of Blumenbach's collection, than the exquisite arrangement of Oslander's. It contains a most valuable series of preparations, chiefly illustrative of his particular department. The room in which it is contained is elegantly fitted up, and the preparations, arranged in the most beautiful order, are all ticketed, with a reference to the catalogue. This catalogue consists of seven folio volumes of MS. and to each number is affixed a complete history of the case of the patient from whom the preparation was taken. Professor Oslander owes this beautiful, we had almost said unrivalled, collection to his own industry. He told an English gentleman, that he had often in his younger days gone without his dinner, to purchase the glass and spirit for some new preparation.

The lectures on botany are delivered by professor H. A. Schrader, from seven to eight in the morning. The botanical garden is one of the most perfect and useful in Europe, the Hanoverian government paying great attention to its maintenance. The lectures on chemistry are delivered by professor Stromeyer, who, since Klaproth's death, may be considered as the first analytic chemist in Europe. At the latter's death, the Prussian government offered professor Stromeyer his place at Berlin; but, the Hanoverian government making a considerable addition to his salary, he preferred remaining in his present post. He is as good a teacher as chemist, and is peculiarly attentive to his students. Independent of his lectures every day, he exercises the pupils twice a-week in experiment in an excellent laboratory.

We may also here mention professor Hausmann, whose lectures on mineralogy, and whose collection, are well worthy the attention of the curious. The lectures on general science and literature are excellent, and every facility is afforded, in this interesting university, of cultivating the higher branches of our science in a manner which is almost unequalled.

We cannot conclude without noticing the visit of his present most gracious majesty to this town and university during his late tour. As the university was founded by George II. it was naturally expected that George IV. would not pass through such a town with the same haste as he would through a place of less consideration; and the public opinion was not disappointed, for he was resolved to stay as long as the very short time he had prescribed for his journey would admit. About noon, (on the 30th of October, 1821,) his majesty's approach was announced by a discharge of artillery; and, when his carriage arrived at the principal gate of the town, he found a grand triumphal arch erected, and a numerous train of young females, dressed in white, and each carrying in her hand a festoon of variegated flowers, approached, with a poem placed on a scarlet velvet cushion; which his majesty was pleased to accept in the most condescending manner. His majesty did not immediately proceed to the university, to examine the rich stores of the library, the orderly cabinet of Oslander, or the disorderly one of Blumenbach. No—the first place to which he proceeded, on his entrance, was the riding-school, where the students had made all the necessary arrangements for entertaining him with a carousal in the style of ancient chivalry. Here his majesty was received by the public authorities; and the professor of riding in the university was in waiting to exhibit before his sovereign specimens of his art, from the first essay up to the acme of proficiency. His performance, we are told, showed that he was without a rival in his profession; and his majesty was not more pleased than surprised at the exhibition. The students were marshalled according to the instructions contained in a printed programme, and they assembled in numbers not less than fifteen hundred. They were placed in array by marshals chosen from among their body, wearing black coats, cocked hats, long tails, and





and scarfs of white silk tied round the waist. They marched to the riding-school in files of four deep, and formed an immense cavalcade. There were, besides, about fifty students on horseback, who were to serve as a guard of honour to his majesty; these wore blue coats with red collars, buff-leather small-clothes and large boots, and cocked hats with white feathers. Each of them carried a drawn sword in his hand. The riding-school is in the form of an oblong square; and on one side of it the students ranged themselves along in double rows, the inhabitants of the town standing immediately opposite to them, while his majesty was conducted to an open pavilion that was placed at the upper end of the room, and hung with a rich drapery of crimson velvet and white satin. To this there was an ascent of seven steps, and two young gentlemen of the guard of honour stood on the first step in front of his majesty. In the pavilion with his majesty were the landgrave of Hesse Hombourg, his sister, the dukes of Cambridge and Cumberland, with their duchesses, several minor princes, and the noblemen and gentlemen of his majesty's suite, who took their station in the rear. A large party of the students now got on horseback, and went through various equestrian exercises, brandishing their lances with great agility, while they made a profound obeisance every time they passed his majesty. Some Turks in effigy, who stood as their opponents, were soon deprived of their heads: the young cavaliers shot them off with great adroitness as they rode forward at full gallop, and displayed them alternately on the points of their lances and of their long swords. They then rode a quadrille; and no French dancing master of the first celebrity could have shown more precision in the different figures than they evinced. His majesty partook of some refreshment before he re-entered his carriage, and was presented with two poems, one in German, and the other in Latin. After leaving the riding-school, his majesty passed through the principal streets, and then proceeded to the hall, where the professor of natural history gives lectures. Here his majesty received the heads of the university and the civic authorities. He then returned to his carriage, and continued his journey.

Catholic Universities.—There are two German universities in the Austrian empire, Vienna and Prague; and five Lyceums, Lemberg, Gratz, Olmutz, Klagenfurt, and Linz. The difference between the universities and the lyceums, so far as concerns medical study, is, that surgery alone is taught in the latter, both medicine and surgery in the former.

The emperor Frederic II. as appears from a work which he composed, and which bears for title, "*De Arte Venandi cum Avibus*," had himself made numerous observations in comparative anatomy. He is quoted as an authority by professor Blumenbach. Frederic is entitled to the everlasting gratitude of mankind, for the exertions which he made in opposing the superstitions and the prejudices, which during the thirteenth century pressed down into the dust knowledge of almost every kind, especially medical knowledge. He got Galen translated; gave orders that every year in Palermo a human body should be dissected; and commanded that no man should be permitted to practise surgery who had not studied anatomy on the human subject. It was in the year 1237, that he granted leave to the senate of Vienna to establish a university. This institution was considerably improved by Albert I. in 1296. Ottokar of Bohemia added to the number of teachers, and augmented their incomes. Under Albert II. the university of Vienna flourished still more: he too added to the number of professors, and granted them public *auditoria* and free dwellings in the imperial castle. Duke Rudolph IV. in 1364, removed the *academical auditoria*, and the dwellings of the professors, to the Minoriten-Cloister,

and to the houses of the former knight-templars, as these were more still and retired. In 1365, pope Urban V. issued a bull of ratification for the juridical, medical, and philosophical, faculties of the university. On the solicitation of duke Albert III. the theological faculty was added by Urban VI. In 1366, this university was arranged anew, after the model of that of Paris, and students were now admitted from the Austrian, Rhenish, Saxon, and Bohemian, nations. Under Albert III. in 1388, the number of professors rose to thirty; and considerable additions were made to the accommodations of the university. Ferdinand II. in 1622, gave over this institution into the hands of the Jesuits, who, though they were themselves shut out from the professorships, yet knew how to retain the whole government of the university till the year 1754, when the learned and enlightened commentator on Boerhaave, Gerard baron Van Swieten, succeeded, against much opposition, in introducing very important improvements. He new-modelled the whole medical faculty, and arranged it in a manner much more likely to answer its professed object than it had hitherto done. He introduced professorships of chemistry and of botany; and the establishment of a botanical garden, and of a complete collection of chemical and surgical instruments, was wholly owing to him. He also brought forward a proposal for a professorship of midwifery. He drew the most celebrated men of all classes to Vienna, assuring them of adequate salaries. The university of Vienna is at present the richest in all Germany. Under the reigns of Maria Theresa, Joseph II. Leopold II. and the present emperor, it has so risen in reputation amongst the catholic universities, that it now occupies, especially as a medical school, the very first rank.

The buildings of the university of Vienna are situated in the town, which is small, and is separated by a wide esplanade from the suburbs, in one of which is the *Allgemeine Krankenhaus*, or General Hospital. The hours of lecturing in the university interfere with those of the visits in the hospital. Hence the lectures are but rarely attended by those foreigners who visit Vienna in pursuit of their medical studies; amongst whom are found students not only from the western and northern countries of Germany, but from Hungary, Switzerland, Italy, Russia, Denmark, Holland, and even France and England, and with them many who have already practised medicine, and occasionally professors from distant universities. It is chiefly from the admirable arrangements of the clinics for internal diseases, for diseases of the eye, and for lying-in women, and from the celebrity of the professors of these three clinics, that foreign students are attracted to Vienna.

In order to be admitted a student of medicine in an Austrian university, it is necessary that the candidate should lay before the director of medical study, certificates of his having studied philosophy for three years in a lyceum. Under philosophy are comprehended the Latin and Greek languages, history, mathematics, natural and moral philosophy, and religion. The school-year in Vienna begins with November, and ends with August. The course of medical study extends to five years, and comprehends the following lectures:

First Year: 1. Introduction to medico-chirurgical study, and natural history, by professor Von Scherer. 2. Anatomy, by professor Mayer. 3. Botany, by professor Joseph Von Jacquin.

Second Year: 1. Physiology, by professor Prochaska, 2. General chemistry, by professor Joseph Von Jacquin.

Third Year: 1. General pathology and therapeutics, by professor Hartmann. 2. Midwifery, by professor Boer. 3. *Materia-medica et chirurgica*, by professor Hartmann. 4. General and special pathology of external diseases, by professor Von Rudtorffer. 5. Ophthalmology, by professor Prochaska. 6. Demonstration of surgical instruments and bandages, by professor Von Rudtorffer.

Fourth Year: 1. Special therapeutics of internal diseases. 2. Clinic for internal diseases. 3. Veterinary medicine, by the director of the veterinary school.

Fifth Year: 1. Special therapeutics of internal diseases. 2. Clinic for internal diseases. 3. Medical jurisprudence, by professor Bernt. 4. Medical police, by the same.

The students of medicine, a class who in Vienna are strictly distinguished from the students of surgery, are not obliged to attend the following lectures: 1. Practical surgery, by professor Kern. 2. Practical ophthalmology, by professor Beer. 3. General pathology, therapeutics, and materia medica, by professor Herrman. 4. Special therapeutics of internal diseases, by professor Raimann.

Such are the ordinary lectures on medicine in the university of Vienna. Those indeed of Kern, Beer, and Raimann, are delivered in the General Hospital. For none of the above lectures is any fee paid by those who are enrolled as students in the university. The expense of enrollment is fifteen paper-guldens half-yearly, which is about 10s. For the lectures and clinic of professor Beer, strangers pay twenty-five paper-guldens yearly. The lectures of professors Herrmann and Raimann are designed for candidates in surgery, and are seldom attended by students of medicine.

The following are accounted extraordinary lectures:

1. Diseases of women and children, by professor Boer. 2. Philosophical and physical knowledge necessary for surgeons, by professor Pöfsling. 3. Duties of those who attend the sick, by professor Schmidt. The lectures of Prochaska, on physiology, and of Hartmann, are given in Latin: the others in German.

The students of practical anatomy carry on their dissections in the university. To foreigners, subjects are supplied at the price of seven paper-guldens. They are brought from the General Hospital, but are not so plentiful as in the dissecting-rooms of Paris. All dissection in the General Hospital is at present strictly forbidden; but it is not unfrequent to obtain leave to dissect in the Military Hospital, which is closely adjoining to the general one, whence the dead bodies are furnished.

Besides the public lectures, several of the professors in the university of Vienna give occasional *privatissima*. By the special order of government, foreigners only are allowed to take advantage of these private courses. Professor Mayer gives private demonstrations on anatomy in this way, or in any particular part of anatomy which is desired. Professor Von Rudtorffer gives over the *privatissima* on bandages and surgical instruments, to his assistant. Professor Kern usually does the same in regard to surgical operations. The assistant also in the obstetrical clinic gives *privatissima*. Professor Beer and his assistant, Dr. Rolas, give similar courses on the operative surgery of the eye. The number of students admitted to a *privatissimum*, is generally six.

In all the public courses of medicine and surgery, an examination of the enrolled students is held by the several professors every half-year, in presence of one or more of the other office-bearers of the university. In order to be admitted to examination for a degree in medicine, the candidate must produce certificates of having acquitted himself respectably in three semestral examinations, of having completed his fifth year of study, and of having publicly treated within the last half-year two patients in the clinic for internal diseases, the cases of which patients he must at the same time present to the faculty, written in Latin.

He who aspires to the degree of *Magister Chirurgiæ*, a rank analogous to that of member of one of our colleges, is obliged to follow nearly the same course of study as the candidate for a degree in medicine. It is different in regard to the common civil and country surgeons, as they are called. These study only two years, and, so far from being required, are scarcely admitted to attend the Latin lectures of Prochaska and Hartmann. Neither in Austria, nor, so far as we have seen, in any part of Ger-

many, is this class of surgeons respectable. They are inferior to the *officiers de santé* of France, and still retain the helmet of Mambrino, and execute at once the duties of barbers and of surgeons.

One of the public examinations for the degree of master in surgery consists in the performance of two operations on the dead body. The operations are determined by lot. The candidate describes the surgical anatomy of the parts, lays down the indications for the operations, performs them upon the dead body which is before him, and applies the proper bandages.

Degrees are granted by the university of Vienna in ophthalmology. Doctors in medicine, and masters in surgery, are considered as having taken this degree; but no one else can publicly practise as an oculist in the Austrian states, unless he has attended the lectures of Prochaska, and undergone an examination by him on the diseases of the eye.

The marked distinction of students of medicine from students of surgery, the severe course of study to which the former are subjected, the neglectful and almost contemptful education of the inferior order of surgeons, and the uncommon opportunities for studying diseases of the eye, especially under men of such reputation as Prochaska and Beer, are prominent points in the medical school of Vienna, so far as the university is concerned. The state of the profession throughout Austria corresponds exactly with the provisions made by the government for medical and surgical education. The physicians are distinguished for their extensive and practical knowledge. Surgery, on the other hand, seems to languish. As for what the Germans have termed ophthalmology; the science of Prochaska, the enthusiasm, the profoundness, and the amazing dexterity of Beer, have contributed to render this one of their favourite studies; and accordingly their practice in this branch is very excellent, and their operations are performed with the greatest judgment and spirit. Indeed, a work recently published in Germany appears to give them the palm over every other nation as oculists; and we must confess that in many points they have outstripped the English. This however is not to be wondered at, when we consider how few in this country make the study of ophthalmic complaints part of their education, while in Germany it forms one of the indispensable qualifications of every practitioner.

Honour, liberty, and life, in so far as they depend upon medico-judiciary reports and inspections, are not made the sport of ignorance and carelessness in Austria. Medical jurisprudence forms an indispensable part of study in the university of Vienna; and certain extraordinary means of promoting an accurate knowledge of this branch of medical science have been adopted by the government, which are well worthy of imitation. These consist in the publication of a code of regulations, by which all medico-judiciary inspections are to be conducted throughout the empire, and reports to be drawn up; and in the performance of inspections publicly, upon the dead bodies which are found in suspicious circumstances, and which, not being at first recognized, are carried to the dead-room of the General Hospital. Due notice is given to the students at what hour such inspections are to take place; and they have thus an opportunity of seeing those regulations put in practice which they themselves will one day be called to fulfil. We may here notice, that, after every death in the Austrian dominions, the physician or surgeon who attended is required to sign a paper, certifying the disease, and whether it were contagious. If it was contagious, the law obliges the relatives to have all the bed-clothes fumigated. In Vienna there is an establishment for this purpose, where, on paying a small sum, the fumigation is properly performed.

There are several anatomical museums contained in the university. That of professor Prochaska is the only one which excites any peculiar interest. As our biographical articles cannot of course include any but persons deceased,

deceased, the present is one of the few opportunities we have of noticing living characters. We shall therefore present our readers with an account of the visit of an English gentleman to professor Prochaska and his museum.

"There is a primitive simplicity, a condescension, and a gentleness, in this old man, so celebrated at the same time for his genius and his learning, which endear him to every one. We had no sooner announced to professor Prochaska the object of our visit, than he put into our hands a foot, which, at first sight, had nothing of an uncommon appearance, except that its surface was of a deep vermilion colour. One might have supposed that it had been roughly coloured, and varnished with a brush. He then gave us a small microscope, and desired us to examine the foot in a good light. We had no sooner approached to the window, and looked at the foot through the microscope, than we discovered that its cutaneous vessels were beyond conception minutely injected. The vermilion colour of the preparation arose from the injection filling, on every point of the surface of the cutis, one might almost say a myriad of arteries. In a second preparation we saw the periosteum of the femur almost equally minutely injected. This preparation seemed to prove the non-vascularity of cartilage; for, as soon as the injected vessels of the periosteum reached the border of the articulating surface of the knee, they were most distinctly seen to return upon themselves, and not one could be discovered, even with the aid of the microscope, to be prolonged into the cartilage, which had retained its white, or rather assumed from desiccation a yellowish, colour. Professor Prochaska has never been able to inject any of the cartilages. He is therefore inclined to believe that the patella which Ruych has described, the internal cartilaginous surface of which exhibited a considerable number of vessels, must have been diseased. Professor Prochaska next showed us a small box of similar Lieberkuehnian preparations, which had cost him, he said, nearly ten years. These consisted of injected and prepared membranes, and of thin sections of other organs, fixed upon plates of glass in the same way that other microscopical objects usually are. When viewed through the microscope, and especially those of the kidney, these preparations displayed a minuteness, a beauty, and a variety, which even exceeded our expectations. Indeed we can conceive nothing in this kind of preparations more beautiful than one of those of which we now speak, in which we saw the capillaries of the cortical part of the kidney, forming on each side of their trunks those little globules, which both Malpighi and Mascagni supposed to be hollow glands, in which the urine was deposited immediately after being secreted.

"We accompanied professor Prochaska from his house to his museum. Here we found whole heads and extremities injected microscopically. He told us that he had injected even whole subjects in that way. He showed us a series of preparations in which the periosteum, the peritonæum, the mucous membrane of the nose, and that of the intestines, could be compared. It is from the redness which a part assumes, when well injected, that Prochaska estimates its vascularity. Some parts, such as the nails, hair, epidermis, cartilages, and arachnoid membrane, never admit injection. Other parts, which exhibit scarcely any vessels immediately after injection, become extremely red on being dried; displaying, when viewed through the microscope, a titlue of innumerable arteries. Such is the case with the internal surface of the cutis, with the nerves, and with the salivary glands."

The Museum of professor Prochaska contains a number of interesting preparations besides the microscopical ones. An account of some of the most curious of these has been printed in the Quarterly Journal of Foreign Medicine, No I.

The Cabinet of Intestinal Worms is a part of the Imperial Museum of Natural History, under the particular

direction of Dr. Brémser, and forms of itself an object of considerable interest, from the great number of specimens which it contains, and from the pains which have been taken to arrange the whole, and even to display the individual specimens. Dr. Brémser practises as a physician in Vienna; he is at the same time a zealous cultivator of natural history, and is perfectly enthusiastic in this particular pursuit, to which his office as conservator of this cabinet directs his attention. He has dissected no fewer than fifty thousand animals, with the sole view of detecting the various species of worms which sojourn in their intestines and in other parts of their bodies. All the animals which die in the Menagerie at Schoenbrunn are delivered to Dr. Brémser for this purpose; and no expense is spared to procure dead animals of rarity, including foreign birds and fishes.

The method taken by Dr. Brémser to detect the smallest worms is extremely precise, and often astonishingly successful. He splits up the intestines, and carefully collects their contents, which he sets aside for examination. Having minutely gone over the internal surface of the intestines which he had emptied, he proceeds to examine the contents in small quantities mixed with water, and poured into a flat glass saucer, the bottom of which is japanned black, surveying each quantity in succession through a microscope. The same kind of saucers he also employs to display the smaller worms, which, being mostly white, are rendered extremely evident by the black ground on which they are thus placed.

The preparations are arranged with much order and neatness. We see each species of worm taken from a complete series of animals, beginning with man, and passing through the different genera of quadrupeds, birds, and fishes. Dr. Brémser has made drawings of most of the species, both of the natural size and magnified: they are executed with great beauty upon a black ground; some of them have been already engraved, and will appear in a work upon intestinal worms, which Dr. Brémser is preparing for publication.

In the suburb of Vienna called the Alster Vorstadt, are situated the General Hospital, the Josephine Academy, and the great Military Hospital. Hence, in this suburb are lodged almost all the foreigners, as well as many of the students from the different parts of the Austrian dominions, who come to Vienna in pursuit of medical study.

The Allgemeine Krankenhaus, or General Hospital, is one of the noblest institutions of the patriot-emperor Joseph II. It is one of the most extensive buildings in Vienna, and considerably the largest hospital which we have seen. Lunatic and Foundling Hospitals are both situated near it; and are, in certain economical respects, connected with it. The greater part of the hospital is of two stories in height. It is arranged in seven large quadrangular courts, the first of which upon entering, and the largest, is laid out with grass-plots and shaded walks; and contains, in a building separated from the rest of the hospital, the house of the director, the medical clinic, a lecture-room, and the museum of pathological anatomy. The physicians, surgeons, and assistants, have apartments in different parts of the hospital. Like most of the hospitals in Germany, it is under the inspection of a medical director, who must reside within the walls of the hospital. This office was filled by professor Von Hildenbrand, lately deceased; and is looked upon as one of great trust and high respectability.

The number of sick rooms is 111; of which 61 are for male, and 50 for female, patients. These rooms are each twenty-six feet long, and seventeen broad; they are lofty and clean. The windows are large; but are all raised eight feet from the floor. The advantages of being able, by this plan, to place beds near to the windows, and of avoiding the stream of air which blows upon the beds when the windows of an hospital are low, are perhaps over-balanced by the disadvantage of being unable readily

dily and completely to ventilate the apartments. The beds are placed two feet and a half from each other. The bedsteads are of wood; and are without curtains; but square pieces of dark green cloth, hung from wooden supports in the form of the letter T, are occasionally used to supply the want of curtains: for instance, in moderating the light around a particular bed, or in concealing a patient, during the last moments, from the view of those who are lying around him. Though long accustomed to the daily view of hospital-wards where no substitute was employed for curtains, we confess ourselves favourable to their use, having seen their great advantages in the Hôtel-Dieu of Paris, and in other hospitals. In beds without curtains, the patients are exposed to the eye of every stranger; whereas, when the contrary is the case, they may look upon themselves as in some measure at home; they can guard themselves from the cold of a large apartment, and are not forced to crowd around the fireplace; they can procure for themselves a certain degree of obscurity, favourable to repose; and conceal themselves from those by whom they are surrounded. The beds of the General Hospital are indifferent: the coverings good. A few minutes before the visit of the physician or surgeon, a quantity of juniper-wood is burned on a shovel carried round in each ward. We never observed this practice produce any irritation even in the patients affected with pulmonary complaints, and it completely removes the fœtor of a sick room. The wards are heated by a large earthen stove placed in the centre of each.

The patients treated in the General Hospital, independently of the Lunatic and Foundling Hospitals, are arranged into five classes. Of these, lying-in women form one; the remaining four consist of patients affected with internal diseases, external diseases, diseases of the eye, and venereal diseases. To each of these five classes, different parts of the hospital are appropriated. The total number of beds is 2000; and in the winter-season this number is nearly filled. The following are the numbers of patients treated during the years 1810, 1811, and 1812, in the General, Lunatic, and Foundling, Hospitals:

	General.	Lunatic.	Lying-in.	Foundlings.	Total.
1810	12,374	251	747	2928	16,300
1811	11,709	512	1115	2843	16,179
1812	10,358	212	1489	2809	14,868

The average number yearly in the General Hospital alone, has, in the succeeding years, amounted to from 15,000 to 17,000.

Three classes of the patients of the General Hospital pay for their maintenance: the fourth, and, we believe, the most numerous class, are admitted gratuitously. The highest rate is eleven-pence daily. Those who enter upon this rate have a separate room, particular attentions, and a very good bed: but they must provide themselves with sheets and washing. Forty separate rooms are appropriated for this class. The second rate is six-pence daily: the patients of this class have no separate room; but, in other respects, are treated as the former. The third rate is, for the inhabitants of Vienna two-pence, and for strangers two-pence half-penny, daily. However great and undeniable the advantages may be, of institutions in which those of small fortune may receive medical attendance on paying a moderate stipend, and thus the patrimony of the poor be preserved to the poor, yet the mixing of those who pay and of those who are admitted gratuitously in one hospital, nay, even in the same wards, by no means appears a proper arrangement. Neither are we friendly to those immense palaces, we had almost said little towns, which we meet with so frequently in Italy, and occasionally in Germany, under the name of hospitals. Whenever the number of patients in an hospital exceeds a few hundreds, the public may look for abuses and mismanagement.

The pharmacy of the General Hospital is an extensive and well-regulated establishment. The Pharmacopœia Austriaca, of 1814, is followed. The authors of that edition have had especial regard to the cheapness of the articles admitted. They have, for this reason, struck out many articles of foreign produce, such as, balsamus copaivæ, balsamus peruvianus, cascarilla, cinnamomum orientale, nux moschata, quassia, sarfaparilla, scammonium, succinum, zingiber. The medical plants, for instance aconite, are brought chiefly from the subalpine parts of Austria. For the sake of economy, in the commencement of the cure of intermittent fever, it is almost general in this hospital to prescribe a decoction of the root of the common taraxacum; and in cases of chancre, in stead of the solid nitras argenti, a solution is employed, which is prepared by digesting for some days, in a warm room, a quantity of filed silver with nitric acid.

There are five clinics in the Allgemeine Krankenhaus, two medical, a surgical, an ophthalmological, and an obstetrical.

The *Schola Practica*, or Medical Clinic, was united with the General Hospital in the year 1784. It consisted of twelve beds, and was under the care of Maximilian Stoll. In the year 1787, he was succeeded by Reinlein, and in 1795 by John Peter Frank. It was especially under Frank that this institution flourished, and became much frequented by foreigners. The number of beds was increased to twenty-four, and an anatomico-pathological museum was established. In 1804, Frank went to Wilna, as a Russian state-counsellor, and thence to St. Peterburgh. He was succeeded, for a short time, by Benth; and, in 1806, by Hildebrand, who, for thirteen years, had been professor of medicine in Krakau and Lemberg.

There can be nothing, we think, more certain, than that, to be really useful, a clinic must consist of a small number of patients. For here, the patients are not to be merely seen, but to be observed; not to be observed by a man of experience merely, but their symptoms and treatment to be made the subjects of investigation by those who are yet unaccustomed to the practice of medicine. The clinical visit ought not to surpass the space of an hour; and, in that space of time, it is impossible to visit more than twenty-four patients. Frank had rarely above eighteen in his clinic at Pavia.

Particular attention ought to be paid, in erecting an hospital, to have the clinical wards both more spacious and more lofty, in proportion to the number of patients which they are to contain, than the common apartments, into which it may be supposed that students rarely come, and where the visits are performed with greater dispatch. In a clinical ward, room ought to be left round each bed, for the accommodation of the students; and, as they are to remain three or four minutes, at least, by every bed-side, there ought to be no chance of the atmosphere of the ward becoming quickly deteriorated. In these two particulars, the number of patients, and the comparative size of the wards, the medical clinic of Vienna perfectly corresponds with the above ideas; but in another respect it struck us as being extremely defective, namely, in the want of small separate rooms for patients labouring under contagious diseases, for phrenitic, maniacal, and hydrophobic patients, for young children, and for venereal cases.

The number of beds in each ward is twelve. Over each bed is hung a black board, on which are written, in Latin, the name, age, country, and profession, of the patient, the name and duration of the disease, the remedies in use, and the name of the *candidatus assistens*, or pupil who has the particular charge of the patient. A painted ticket, hung up along with this board, indicates the diet of the patient, by the words *weak portion*, *quarter-portion*, *third-portion*, *half-portion*, *whole portion*, terms corresponding with those of the fixed diet-table of the hospital, which is suspended in all the wards. It seems to be as necessary to teach the regulation of a patient's diet

in an hospital as to teach the powers of drugs. Yet we have seen hospitals where no such thing as a diet-table existed; or if it did exist, it was at least never submitted to the examination of the students; and we have observed, that it was in regulating the diet of their patients, that young practitioners, issuing from such a school, were ever most at a loss.

The number of patients treated in this clinic, during the school-year, is above 200. They are chosen out of a thousand patients; and the selection made by Hildenbrand, as well as his whole manner of conducting the clinic, seemed highly judicious. He did not search for extraordinary cases, seldom ventured upon new experiments, and despised to raise the wonder of the unexperienced by a show of boldness or of novelty. It was the great object of his instructions to make known to his pupils what is already approved and certain in the healing art, and to teach them the method of observing, examining, and treating, every kind of internal disease. He chose from among the numerous patients who daily entered the hospital, some acute cases, and some chronic, some common, and occasionally some which were rare; but his choice never seemed to be made with the view of putting to the test any whim of the day, nor of flattering the passions of the young for remedies, and even for diseases, which are supposed to be newly discovered. Puerperal women, patients with syphilis, and children, were occasionally admitted.

The visit in the medical clinic is from eight to nine in the morning. The assistant, who is a graduate, and is styled *sekundar-arzt*, regularly follows the visit, and, along with those students who choose to attend, visits again in the evening. We have already remarked, that no one can take the degree of doctor in medicine in the University of Vienna, without having attended this clinic for two years, and treated, under the eye of the professor, two patients within the half year preceding his offering himself for examination. This is absolutely required; but we should suppose that each student has the opportunity of treating five or six patients at the least, each year of his attendance. The number of students at the beginning of November last was about sixty, including foreigners.

The duties of the *candidati assistentes*, or students who have the care of patients, consist in examining the particular patient committed to their care, publicly on his admission, and again at every visit; in writing out an *historia morbi*; and in keeping a careful journal of the symptoms and treatment. These cases are never written in a short and imperfect manner: they are not made up of mere hasty notes of symptoms, strung together without order: they contain a faithful and minute account of the state of the patient, at the last morning visit, at noon, and at evening; with observations, and even occasionally short arguments in regard to the diagnosis, prognosis, and treatment. Each report is dated both by the day of the month, and by the duration of the disease: they are written in Latin; are publicly read at the bed-side; and, on the dismissal of the patient, are delivered to the professor.

Professor Von Hildenbrand's work, entitled "*Initia Institutionum Clinicarum*," contains exact rules for the guidance of pupils in their examination of patients; in determining the nature, form, stage, and degree, of disease; in fixing the names, treatment, and prognosis; and in writing the history of the case. It has, perhaps, too much of a scholastic air to be all at once relished by common English readers; but we have met with no work which could better serve as a guide both for clinical students and for clinical teachers. Nor did professor Von Hildenbrand distinguish himself more by the keen-eyed precision with which he regarded the symptoms, causes, treatment, and prognosis, of a disease, than by the purity and fluency of the Latin diction in which his observations at the bed-side, as well as his lectures, were de-

livered. The whole of the conversation between the professor, assistant, and candidate, is carried on in Latin. Professor Von Hildenbrand seemed to us to speak Latin better than he did his own language; and, though we are more favourable to the Italian and Scottish than to the German manner of pronouncing Latin, we could sometimes have fancied ourselves in ancient Rome, and that the person whom we heard was not a Galician of the nineteenth century, but Celsus himself.

Hildenbrand might be regarded as an Agathæus Spartanus. He was known over all Germany, a country which is but too much overrun with hypotheses, and all the other offspring of a futile philosophy, as being one of the ablest supporters of an eclectic school, in which the doctrines of rational medicine were combined with those of empirical. That he was, in a word, a rational empiric, appeared at once from his clinical practice, from his prelections, and from his writings. To what are styled active methods of treatment, Hildenbrand was not favourable; and, having but small faith in the alleged power of drugs, he in general adopted and recommended simple, mild, and indirect, means of relieving and assisting nature. It seemed to be the observing spirit of Hippocrates, enlightened by all that physiology and pathology have discovered since the days of the father of medicine, which shone forth in Hildenbrand, guiding him in his inquiries, and leading him to watch the most minute changes which nature herself effects in diseases, but without blinding him to the agency of any really useful remedy.

We can scarcely conceive any improvement which could be made in the clinical education of physicians at Vienna. The system seems to us to be perfect. A stage for dramatic and affected exhibitions, or for hazardous and ill-directed experiments, is the idea which is apt to rise in the mind upon mention of a clinic. But, in that of Vienna, both the physician and the pupils seemed to do every thing as they would have done in private practice. It seemed as if the students were led by Hildenbrand into the private houses of his patients; and as if the pupils were not learning a lesson in an hospital, but beginning to practise for themselves, with the advantage of having an experienced and able practitioner with whom they might consult. The graduates of Vienna have not idled away the season for practical improvement. Placed in a situation suited as well for the communication of knowledge as for the elicitation of talent, they are schooled in penetration, and in actual habits of observation; and bring into the chambers of the sick, something more than book-learning, something widely different from fashionable accomplishments.

The Museum of Morbid Anatomy is attached to the medical clinic; and there is no part of the School of Vienna, which more strongly marks the sincere wish of the Austrian government to render the system of medical education complete. A professor, who acts also as *anatomicus forensis*, is appointed to examine with care the dead bodies of those who die in the hospital, and to preserve such parts as may prove useful pathological preparations. He lives within the walls of the hospital; and receives such a salary as may prevent him from withdrawing his attention from this office towards other pursuits. The Museum consists of upwards of six hundred valuable preparations, the greater number of which are preserved in alcohol. A *Catalogue raisonné* has been published by Dr. Biermayer, the present professor, in which 586 of the preparations are described, under the title of "*Museum Anatomico-Pathologicum Nosocomii Universalis Vindobonensis*, 1816."

The chair of the Surgical Clinic is filled by professor Vincent Kern, who gives daily lectures upon the practice of surgery in the operation-room adjoining to the wards. This clinic, indeed, owes its origin to professor Kern, and has existed only since 1806. The number of male patients admitted is eight, and of females six. They

are usually chosen from among the patients of the hospital who are admitted gratuitously; but, when important operations are about to be undergone, it frequently happens that patients who pay prefer passing into this clinic. This clinic is public to every one who leaves his name with the professor. The students of surgery of the second year are obliged to attend, and to undertake the care of patients, as the students of medicine do in the clinic for internal diseases. From sixty to eighty students follow the clinical visit, but the operations are much more numerously attended. The visit is at ten o'clock every morning.

With this clinic is connected a particular institution, or *Pflanzschule*, as it is styled, for the education of surgical operators. Professor Kern has the liberty of selecting six individuals from among his pupils: these he instructs privately for two years, exercising them especially in the various operations of surgery upon the dead subject; after which they are permitted publicly to operate upon the living. Professor Kern, indeed, leaves almost all the operations upon the clinical patients, except lithotomy, to be performed by his pupils, while he himself takes his place as their assistant. The pupils who are selected for this purpose are not in every case students of surgery, but are sometimes graduates in medicine, whose peculiar talents and inclination lead them to the practice of surgery. They live in the hospital, and receive from the emperor a yearly stipend, in consideration of which they are afterwards obliged to serve the state for a certain period. In general they are speedily promoted to be surgeons of hospitals, regimental surgeons, or professors of surgery in some of the lyceums.

Professor Kern is distinguished by his extreme attachment to simplicity in his surgical instruments, and methods of operating. His lithotome is a short and thick knife, of a very simple and almost uncouth form. The simplicity of his external treatment of surgical diseases is still more remarkable. His school may well be called the School of Nature; for he trusts almost as little to art as did Maître Doublet, the contemporary of Ambroise Paré, of whom Brantôme tells us; "Et toutes ses cures faisoit le dit Doublet par du simple linge blanc, et belle eau simple, venant de la fontaine ou du puits." Professor Kern has banished from his practice almost all the common applications, such as ointments, plasters, lotions, lint, tow, and even bandages; and has substituted in their place the application of water, and a simple covering of linen. This plan of treatment he follows even with his private patients; and it certainly shows no small firmness, to humour the prejudices of the public so little, as never to prescribe a plaster or a salve.

In amputation, professor Kern makes use of iced water, which he applies by means of a sponge to the surface of the stump, as soon as the large vessels are tied. This application, so far from being painful, appears to give ease. The edges are then brought together by adhesive straps. The stump is covered with a large flat sponge, dipped in cold water, and wrung between the fingers; and this is continued for forty-eight hours. In some cases, this application is changed for a folded piece of linen moistened with warm water, and applied over the adhesive straps. The same mode of treatment is followed with all wounds after operation. The edges are brought together by adhesive straps, and then water is applied. No ointment, no charpie, no bandage is employed. The success of professor Kern in his operations is very great.

The extreme simplicity of professor Kern's practice is a subject which never fails to excite the attention of those strangers who visit his clinic. The cases under treatment are seen to be going on well; and the success is acknowledged by all to be extraordinary. Yet the use of water, as almost the only external remedy, is a practice which by no means meets with a favourable reception. There are few, even of professor Kern's pupils, who advocate

this practice; many seem to think it unworthy of serious examination, and to feel as if such a simplification of surgery were a degradation of the art; others blame the practice with much asperity, yet without daring to deny the success with which they see it attended. Those who address the professor upon the subject, he refers to the patients before them; or, if he enter into any defence of his opinions and practice, it is nearly in the following manner: "At the commencement of my surgical practice, I had a patient brought to me with a large ulcer on the leg, which had resisted all kinds of ointments and plasters. I told the man to lie in bed, to remain at rest, and to give up all applications except a poultice. In three weeks the ulcer was closed. This, and many similar facts, have convinced me of the bad effects of the usual treatment, and led me to the use of a more simple plan of cure. I employ water as an indifferent matter, to cover a surface which is deprived of its natural insulator, the external skin, and to protect that surface from injurious influences. It acts favourably upon the circumference of the sore, as well as upon the sore itself. Ointments and plasters, on the other hand, are irritating and prejudicial substances, when brought into contact with an uncovered surface, naturally unaccustomed to any such foreign impressions. As wounds of bones, for instance fractures, are healed without any external application, so may all wounds of the soft parts be cured. The cure of wounds is the work of nature. Even gangrenous, venereal, and scrofulous, ulcers, require only a proper internal treatment, and the use of external warmth applied by means of water. Cold, again, applied by means of a sponge to recent wounds, lessens in the most effectual manner the organic reaction, diminishes pain, moderates suppuration, and prevents nervous affections. Bandages may be dispensed with, except in a very few instances. The journals of this clinic are open to your inspection." A farther account of professor Kern's opinions may be found in his "Annalen der chirurgischen Klinik," 2 vols. 1809; and in his treatise "Ueber die Absetzung der Glieder. Wien, 1814.

The Ophthalmological Clinic.—It is necessary accurately to distinguish those practitioners who have of late years applied themselves in Germany to the diseases of the eye, from the class who are termed *oculists*, whether of that or of any other country. The latter would wish to divide surgery into a number of trades, of which they would monopolize one. The former have not confined themselves to the eye, but all of them have come prepared to the study of that organ by an intimate acquaintance with medical science in general, and many of them have distinguished themselves by their labours in anatomy, and their improvements in the practice of surgery; as for instance, Richter, Schmidt, Barth, and Prochaska. These men have not regarded eye-diseases as local merely. They have rendered eye-operations less frequent, by their rational and constitutional treatment of those affections which give rise, under mere local and empirical management, to the morbid changes of the eye which afterwards call for the interference of the operator.

Vienna is at present the most celebrated school for the surgery of the eye in Germany. Professor Barth, who is by birth a Maltese, and still lives in Vienna, as emeritus-professor of anatomy, was the first public teacher in this branch of surgery in Austria. He is but little known by his writings on this subject, not having published any thing upon the diseases of the eye, with which we are acquainted, excepting a small tract, in which he describes a manner of performing extraction of the cataract without an assistant. He has many pupils, however, who still speak of his lessons with respect; and the present professor of practical ophthalmology was, for a considerable number of years, his assistant. By the late John Adam Schmidt, the same of Vienna as a school for the diseases of the eye, was much increased. He did not belong to the general hospital, nor to the university, but to the Josephine

Josephine Academy. He is well known by his ophthalmological as well as by his other writings, and especially by his treatises upon the Diseases of the Lachrymal Organs, and upon the Inflammation of the Iris. He wrote a considerable part of the ophthalmological *Bibliothek* of Himly; and it were to be wished that some of his countrymen would treat his memory with more respect, and acknowledge what they have borrowed from his valuable communications to that journal.

Dr. George Joseph Beer has been for more than thirty years employed in the practice of this department of surgery. He was for many years extraordinary professor only; but in the year 1815 a chair of practical ophthalmology was founded in the university, which has since been filled by this learned and enthusiastic man. The name of professor Beer is already known in England. He is a voluminous author, but all his works are upon the subject of his favourite study.

The Clinic for the Diseases of the Eye has undergone various improvements within the last ten years. It has existed in its present situation in the General Hospital, and with its present arrangements, since November 1816. The clinic consists of an auditorium, and of two wards, on the second floor of the hospital. The auditorium is well lighted, and neatly covered in green. The windows are so supplied with shutters and curtains, that the light can be in an instant increased or diminished. A large eastern window supplies the light admitted during operations. Besides seats for one hundred and fifty students, this room contains a cathedra of an oval form, raised about a foot and a half from the floor, and surrounded by an iron balustrade. From this the lectures are delivered, and it is used also for the operations, being large enough to contain a patient, along with the professor, the assistant, and the *ordinarius*, or pupil to whose care the patient is intrusted. A collection of instruments and bandages both for the use of the clinic, and for the illustration of the history of ophthalmology; a collection of anatomical and pathological preparations of the eye; and a library of printed books, manuscripts, and drawings, illustrative of the structure and diseases of that organ; are contained in the auditorium. The dust of neglect is not allowed to gather on any of these collections. They are, on the contrary, yearly increasing. The library is open to the students. The auditorium is adorned with a bust of the present emperor; and portraits of Baron Protomedicus Von Stift, the director of medical study in the Austrian dominions; and of the following distinguished surgeons; Scarpa, Richter, Schmidt, Barth, and Prochaska. Each ward is about the same size as the auditorium, is also coloured green, and contains twelve beds. The wards are separated from the auditorium by two small rooms appropriated to the use of the nurses. In the middle of each ward is a long table, which serves both as a dining-table for the patients, and also for laying out the bandages, instruments, and medicines, made use of at the visit. The windows are supplied with shutters and curtains. Each bed has three such substitutes for curtains as we have already described at p. 64. The wards are furnished with every thing necessary both for the strictness of clinical instruction, and for the peculiar care of patients affected with diseases of the eye. A salaried assistant, residing in the hospital, is also attached to this clinic.

The instructions delivered in this institution, which, as in the other clinics, are continued uninterruptedly for ten months, are given in the following order. The lectures on Practical Ophthalmology are delivered every morning, Saturdays and Sundays excepted, from ten to eleven o'clock, in the German language. The lectures commence with a very complete account of the anatomy and physiology of the eye, in which constant reference is made to the morbid changes to which the various textures of that organ are liable. The dissections of the eye and of the neighbouring parts, which are made for this

part of the course, are very numerous, and are executed with great care, chiefly by professor Beer himself. Students can readily procure admission when these dissections are preparing; and thus have an opportunity of becoming more intimately acquainted with the practical anatomy of the eye, and with some peculiarities in Professor Beer's manner of demonstrating that organ. Under the anatomy of the eye, Professor Beer includes the osteology of the orbit, and the demonstration of the muscles, blood-vessels, nerves, and all other parts connected with the organ of vision. He borrows frequent illustrations from the comparative anatomy of the eye; and possesses a finer collection of original drawings in this particular department than is perhaps in the hand of any other anatomist. To this part of the course, which lasts about two months, follows a few lectures upon the manner in which the diseased eye ought to be examined. The next and principal part of the course continues for nearly six months, and is occupied with the pathology of the eye, and the medical and surgical treatment of its diseases. The whole concludes with a history of ophthalmology from the most ancient times to the present, and a critical review of the most celebrated works in this science.

Daily, from eleven to twelve, Saturdays and Sundays included, the strictly-practical instructions are given, partly at the bed-sides of the patients who have been admitted into the clinic, and partly in the review of the ambulatory or out-patients. The plan followed by professor Beer is to bring every new and interesting patient, whether he be afterwards to remain in the clinic, or to be an out-patient only, into the auditorium, and to place him in the cathedra. Any one of the students may now offer himself to be the *ordinarius*, or *candidatus assistens*, for this patient; and, entering the cathedra, may examine the symptoms, pronounce a diagnosis and prognosis, and propose a plan of treatment. All this is done under the correction of professor Beer, whose earnest desire to communicate instruction in these practical exercises merits the most unequivocal applause. It is here perhaps that professor Beer most distinguishes himself. We do not mean to lessen his fame as an eye-operator, already so widely and so well established; but we must confess that it was ever as a diagnostician that he appeared to us to rise beyond all rivalry.

The number of students who attended this clinic from 1814 to 1817 was as follows:

1814-15,	111.	Of these 65 were not Austrians.
1815-16,	170.	92
1816-17,	199.	104

The number of patients and of operations was as follows:

	In-Patients.	Out-Patients.	Operations.	For Cataract.
1814-15,	96	114	92	60
1815-16,	106	158	78	57
1816-17,	115	180	96	59

We have already taken notice (p. 58, 62) of the method of instruction by what are called *privatissima*. Those of professor Beer are extremely valuable. He gives a short course of the operative surgery of the eye, repeats the different operations, and explains, as he goes along, every step and minutiae in their performance; and then directs the pupil in the repetition of each of them upon the dead subject. After attending one of these private courses, the pupil is allowed to operate upon the living subject. Upwards of thirty heads are employed in a course.

Daily, at three o'clock in the afternoon, professor Beer gives advice to the poor in his own house; and to this *house-clinic*, as it is called, students are admitted. Many of the less severe diseases of the eye may here be observed, which are not so frequently seen at the hospital; and the student finds in professor Beer a friend ever ready to explain, and to assist him in the examination of the cases.

The fee for the clinic is twenty-five paper guildens yearly,

yearly, (19s.) for the house-clinic a ducat, (10s. 6d.) for a *privatissimum* eighty paper guldens, and for each operation upon the living subject four ducats. For Dr. Rosa's *privatissimum*, twenty-five paper guldens. For each head for operations, one paper gulden.

The *Gebuerhaus*, or Lying-in Hospital, was established by the emperor Joseph II. in the year 1784, partly with the view of preventing child-murder. In the course of the first year after it was opened, 748 children were born in this hospital. It forms part of the General Hospital, and is under the same management; but is separated in some measure from the other buildings of the hospital by a small court.

This establishment is divided into two sections. The one is for those women who pay; to the other admission is gratuitous. The former is committed to the superintendence of Dr. Pelan; and is not open to students; the latter constitutes the Clinical School of Midwifery, and is under the care of professor Boër.

The Private Lying-in Hospital consists of two divisions. The one contains twelve rooms on the ground floor, which are set apart for secret deliveries, and the greater number of which are occupied each by a single patient. The other division contains six rooms, each of from four to six beds. In the first division, if the room is not occupied for a complete day, six paper guldens are paid. If the person continues longer, she pays daily a gulden and a half; for which she has board, lodging, medical attendance, nursing, and the baptism of her child. If she gives over her child to the foundling-house, she pays forty guldens. Besides the accoucheur, midwife, and nurse, no person is allowed to enter her room. In the second division, there are indeed several beds in each apartment, yet there is such an arrangement, that those who have been separated from those who are to be delivered. A person who does not remain in this division during an entire day, pays four guldens and a half. If she remains longer, she pays daily half a gulden. Also here, none but the necessary attendants are admitted. If a woman of this division would give her child into the foundling-house, she pays twenty guldens.

This section of the lying-in hospital was intended by the imperial patriot as an asylum for those who might wish to conceal their pregnancy; and here those individuals find that they are safe from discovery. Even the tribunals are obliged, if it be brought as a corroborative ground of accusation against a woman that she had resided in the lying-in hospital, to reject the evidence to that effect as not valid. On entering the hospital, the woman is not required to tell her real name or condition, much less to declare who is the father of her child. She is required merely to bring along with her a sealed letter containing her real name, that in case of her death information may be communicated to her relations. As soon as the number of her room and bed is written upon the letter, it is returned into her own keeping. She can enter the hospital and leave it in disguise, or even masked; and indeed continue so during her whole residence, if she choose it. If she bring a nurse along with her, she need not expose herself even to the nurses of the hospital. She can leave the hospital immediately after her child is born, or remain for some time. She can leave her child, or remove it. Many make use of this institution only during labour, leave it some hours after their delivery, and give up their child to the foundling-house.

The rooms of this section are neither so spacious nor so clean as those belonging to the section for the poor, but are more crowded. Notwithstanding, they contain fewer sick in proportion to the number they accommodate, and fewer die in this section. This must be attributed in some measure to the greater degree of warmth, and to the avoidance of draughts of air in small rooms; in which particulars these are much preferable to spacious and airy wards, especially for lying-in women. The average number of births in this section of the lying-in

hospital, has been for some years past from 800 to 1000 annually, being about a third fewer than in the clinical school. We suspect that in a considerable proportion of these births, the children are illegitimate. In the twenty-four hours, there are on an average from two to three births. Three midwives assist at the labours, and the accoucheur is called in only in difficult cases.

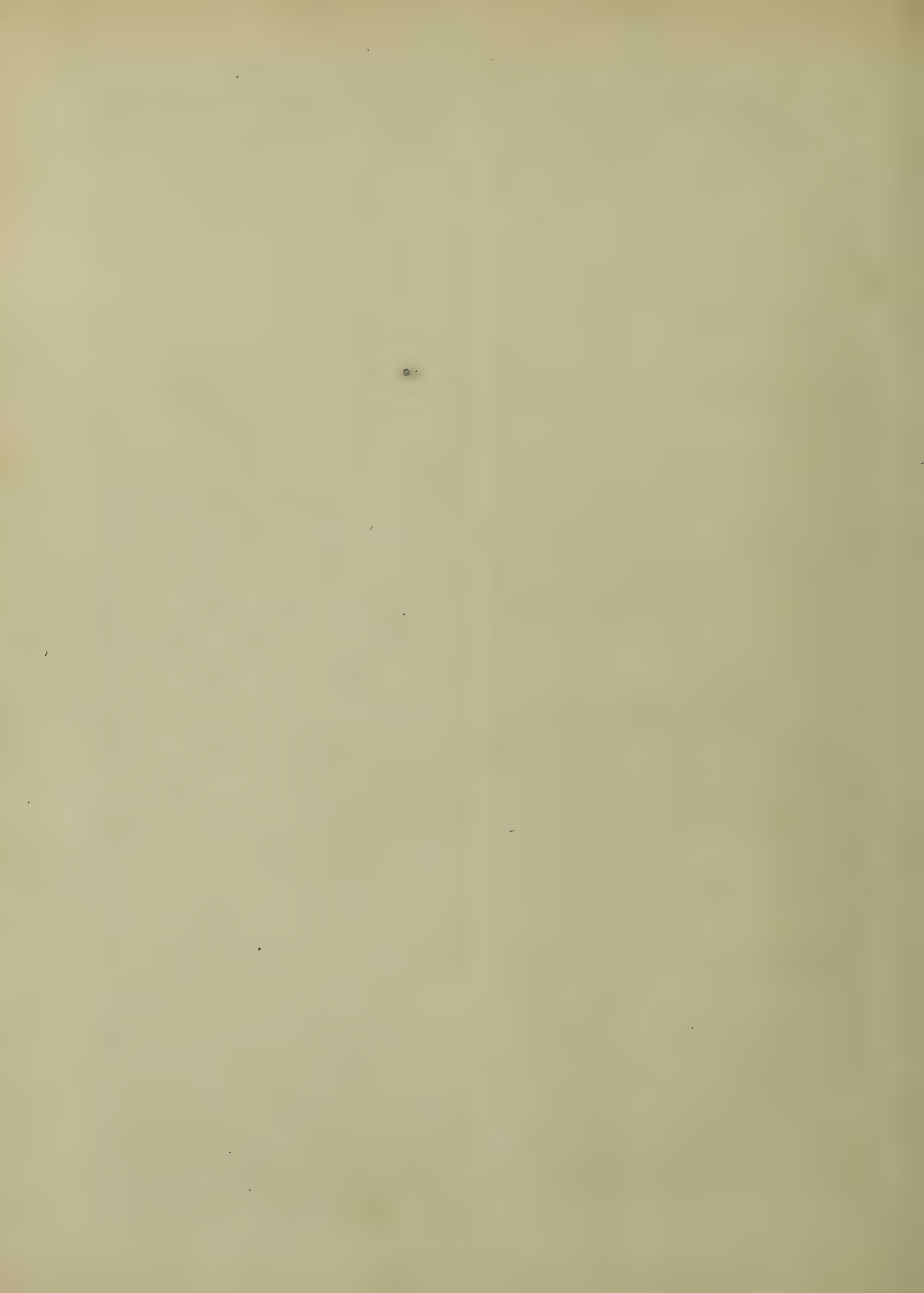
The Obstetrical Clinic.—The chair of clinical midwifery is filled by professor Lucas John Boer. The section of the lying-in hospital, containing all those women who are admitted gratuitously, along with almost all those who enter on the lowest rate of twopence halfpenny daily, is committed to his care. Every woman admitted gratuitously must assist in the household work of the hospital, and afterwards serve for a certain time as nurse in the foundling-hospital. The number of births in this section is 1200 annually. The proportion of unmarried women delivered, is to that of the whole number delivered, as 47 to 50.

This section of the lying-in hospital is frequently styled the *Schola Obstetricia*; and it is here alone that students are admitted to the practical study of midwifery. Indeed it is chiefly in this school that midwifery is at all studied, at least by foreigners, at Vienna; for professor Boer's lectures in the university are for midwives rather than male students; and the lectures of professor Schmitt in the Josephine Academy interfere with the clinical visit of professor Boer.

Professor Boer visits his clinic morning and evening. The morning visit is from nine to ten; and is so far public, that foreign students, who apply to professor Boer, are permitted to attend gratis, and to be present at the deliveries which happen between these hours. Those who follow this visit meet in the delivery-ward, and then attend the professor through the wards containing the women who have been delivered. Two wards for this class of patients are constantly in use, each of fourteen beds. A third was formerly kept for the purpose of emptying either of the others at pleasure; but sometimes all the three are occupied.

Into one of these wards, those who are about to be delivered are brought as soon as their labour-pains commence, and there they remain until the os uteri has dilated. They then pass into the *delivery-ward*, which is situated between the two large wards for women who have been delivered. The floors of all these apartments are covered along the sides of the beds with broad pieces of dark-coloured cloth, which are continued also between the wards. This prevents those who have been delivered from stepping out of bed upon a cold floor, and hides any blood which may fall from the woman in labour, as she passes into the delivery-ward. The delivery-ward contains four beds, which are surrounded by the kind of moveable curtains formerly described. No delivery-chair is employed by professor Boer; but the bed is arranged to answer the purpose of a delivery-chair, by means of ten bags of straw, each three feet long, and from a foot to a foot and a half thick. These are laid above the straw-mattress of the bed, and serve to raise the head and back of the patient. Over all are laid a woollen coverlet and a sheet, and a coverlet of the same kind is laid over the woman.

The assistant and the midwife live in the hospital, and are present at all deliveries. The professor does not live in the hospital, and is called only in difficult cases. There are ten male students, and as many female pupils, to whose care the patients are particularly intrusted before and after delivery, as well as during the time of labour. Six of these students are styled *intra-pratikants*, and the remaining four *extra-pratikants*. All the ten female pupils are *intra-pratikants*, and reside in the *Gebuerhaus* itself. The six students who are *intra-pratikants* reside in other parts of the hospital. The four *extra-pratikants* are not Austrians. The appointment of *pratikant* is given by the professor, and no money is taken for it openly. The *pratikants* are the only persons called upon



upon to be present at operations. A male and female *intra-pratikan* daily take the office of journalists, whose duty it is to examine all women applying for admission, to be present at all deliveries which take place within the course of the twenty-four hours, and to enter into a book the names of the patients who are admitted into the clinic, and of those who are delivered during that day, but without any history of the cases. The appointment of *pratikan*s continues for two months.

Children's beds are scarcely ever employed in the clinic: the children are laid by their mothers' side. Swaddling, a barbarity almost unknown in England, but which holds its ground in many parts of the continent of Europe, is not permitted. After a few hours the breast is given, the mother continuing in the reclining posture. Many of the mothers, indeed, refuse to give the breast to their children, knowing that in not many hours they are to be sent to the foundling-house. Small as the rate of two-pence halfpenny a-day is, it is surprising how early after delivery the patients leave the hospital, in order to save this expense. We have been assured that frequently on the second day, and sometimes even on the next day after delivery, they give up their child to the foundling-house, and return home. The greater number leave the hospital at the end of a week. Very few remain two weeks.

For several years past, professor Boer has given no clinical lectures. Neither is there any regular system of instruction in the practice of midwifery followed in the clinical school, nor is there any demonstration of the obstetrical instruments, nor any exercising upon the phantom or machine, under the immediate direction of professor Boer. The principal part of the instruction to be gained at this clinic, must be gathered from his occasional remarks and conversational examinations. His assistant, indeed, gives *privatissima*, both to male and female pupils, at ten or fifteen paper-guldens.

Professor Boer is a pupil and a partisan of the English school of midwifery. His forceps are nearly those of Dr. Hamilton; but he almost scoffs at instruments, and, like Dr. William Hunter, sums up his advice for difficult cases, in the word *PATIENCE*. He says plainly, that midwifery is better understood in England than in any other country. Little, therefore, is to be learned in the clinic of professor Boer of the artificial part of midwifery; while the best opportunity is afforded of estimating the value of the *ars obstetricia per expectationem*. To a treatise which professor Boer has published, he has given the title of "*Elementa Medicinæ Obstetriciæ Naturalis*." This work is distinguished for the classic taste with which it is written.

The medical treatment of the women who have been delivered in the clinic, is in general so extremely simple, that professor Boer is wont to say, that they cure every thing there with beer-soup, and require neither great learning nor dear drugs. The number of puerperal diseases which do occur is very small. This is probably owing in a considerable measure to a regulation, which is strictly followed, that no woman should be left twenty-four hours after delivery, without having a clyster given her, if her bowels have not been opened. In puerperal fever, professor Boer is a friend neither to blood-letting nor to strong saline purgatives; but trusts, as in many other cases, more to nature than to art, ordering little more than some powders of ipecacuanha in the commencement, clysters, some spoonfuls of tincture of rhubarb, a little of Dover's powder, and emollient cataplasms to the abdomen. In the pain of the inferior extremities after delivery, with or without œdema, professor Boer has derived great advantage from a blister applied like a garter under the knee. He maintains that abscesses of the mamma are never to be opened with the knife, but are to be treated with poultices till they open of themselves, after which neither lint nor ointment is to be applied. The cause of such abscesses, he considers to be

the want of timely putting the child to the breast, and of regular sucking. To fore nipples he applies cloths dipped in warm water, and orders the child to be continued at the breast, its saliva being the best remedy.

As soon as professor Boer sees aphthæ in a child, he concludes that it has had tea, sugar, or syrup, or that it has used a sucking-cloth. Any such foreign irritation, acting upon the tender mouth of the child, causes aphthæ. In the clinic, as the children get nothing but their mothers' milk, aphthæ are exceedingly rare, whereas that disease is extremely common in the foundling-house. In the ophthalmia of new-born children, professor Boer rejects all collyria, as irritating and likely to increase the inflammation. He rejects also the washing of the eyes with milk, as it is apt to be sour. He places by the bed of the mother two cups of cold spring-water. In the one she dips a bit of linen, and in the other washes out the bit which she has removed. These are frequently applied over the eye-lids. Under this treatment the inflammation diminishes, the eye-lids are prevented from adhering together, and the purulent discharge is said to be averted.

The Foundling-house is also under the same direction as the General Hospital; but stands on the opposite side of the street, and has its own physician, surgeon, and overseer. Of late years it has been much improved by the care of government, and the exertions of a society of the ladies of the Austrian nobility. This is called the "Society of Noble Women for the Promotion of the Good and Useful." In 1814, the following were among the applications of their funds:

	Guldens.
Care of Foundlings, and Premiums to Nurses	9871
Institution for the Instruction of the Deaf and Dumb	2492
Institution for the Instruction of the Blind	3349
Care of Patients with Diseases of the Eye	3806
Support of poor Lying-in Women	1250

All attempts to rear the children in the hospital itself had failed: In the most favourable years, only 30 children out of the 100 lived to the age of twelve months; in common years, 20 out of the 100 reached that age; and in bad years not even 10. In 1810, 2583 out of 2789 died; in 1811, 2519 out of 2847 died. Like the cavern of Taygétus, this hospital seemed to open its jaws for the destruction of the deserted and illegitimate progeny of Vienna. The emperor Joseph II. frequently visited this hospital in person; and upon one occasion he ordered professor Boer to make a series of experiments with all kinds of food, that it might be ascertained how far diet had its share in the mortality. Twenty children were selected, and fed with various kinds of paps and soups; but in a few months most of them were dead. In 1813, the government enacted that the foundling-house should serve merely as a dépôt for the children, till they could be delivered to the care of nurses in different parts of the country. Already, this plan has in part answered the benevolent intentions of those who supported it, and given credit to the opinion of the medical faculty, who, in their report upon this subject, attributed the mortality in the foundling-house, not to the want of care, food, or cleanliness, but to the crowding together of so many children, and the unavoidable deterioration of the atmosphere which hence resulted; to the noise, and to the contagious diseases to which the children were exposed, and especially contagious diarrhœa. This hospital still continues to contain upwards of seventy nurses, and more than twice that number of children. Every nurse has her own bed, and beside it two children's beds. In general, each nurse has her own child committed to her care, and another child.

The Institution for Sick Children.—This institution owes its origin to Dr. Mafalier, a celebrated and benevolent physician of Vienna. It is at present under the care of Dr. Goelis, at whose house in the Wollzeil-street the visit is daily held from three to five o'clock in the afternoon.

afternoon. Students who previously intimate their wishes to Dr. Goelis, are permitted to attend, and have thus an opportunity of seeing the diseases of children treated with much skill and attention. The average number of patients is 500 monthly.

Dr. Goelis has undertaken the publication of a series of monographies upon the different diseases of children, to which diseases his practice is nearly confined. The vast opportunities of observation, the care in conducting this institution, and the numerous dissections of those children who die, lead us to hope much valuable information from these works, the first volume of which is already published.

The Josephine Academy, considered as a building, is one of the most splendid edifices in Vienna. The emperor Joseph II. was the founder of this institution, the object of which is to supply the Austrian army with able physicians and surgeons. On the front of the academy is the following inscription: "Munificentia et Auspiciis Imp. Cæs. Josephi II. P. F. Schola Medico-chirurgica, militum morbis et vulneribus curandis sanandisque instituta, æde et omni suppellectile salutaris artis instructa, Anno R. S. 1785." It was opened with much ceremony upon the 7th of November, 1785; and a gold medal of the weight of forty ducats was struck upon the occasion. The first director of the academy was Brambilla, the author of the *Instrumentarium Chirurgicum*, and other works. To him were intrusted the making of the statutes, and the arrangement of the whole institution.

The Josephine Academy is completely separated from all other schools. It is under the direction of the minister of war, out of whose treasury the salaries of the professors and all other expenses are defrayed. The number of pupils is 200, of whom fifty receive a monthly allowance from the academy. Having finished their attendance of two years, to which period of time the course of study extends, they undergo a severe examination, are promoted to the degree of doctor in surgery, and appointed to a regiment; but the academy possesses no power to grant the degree of doctor in medicine.

There are five professors and a professor in the academy. The professors belong to the army, being staff-physicians; and they bear the title of imperial counsellors. The greater number of them reside in the academy. Their lectures are delivered in German. The Field-physician-in-chief and Director is Beinel von Bienenburg.

The pupils of the Josephine Academy have abundant opportunities for the practical study of their profession, there being three clinics attached to the institution. The patients are soldiers and soldiers' wives, chosen from the Great Military Hospital, which is situated close to the academy, and is fitted up for 1200 patients. The Medical Clinic is under the care of professor Castelltiz. The visit is from six to seven in the morning. The Surgical Clinic is in the hands of professor Zang, a surgeon of very distinguished merit. The visit is from four to five in the evening. Professor Schmitt has an Obstetrical Clinic, in which from 70 to 80 soldiers' wives are delivered in the course of a year.

To all the lectures and clinics strangers are admitted, who previously leave their names with the several professors, except to the obstetrical clinic, which is particularly designed for the pupils of the academy. The clinic of professor Zang is much frequented by strangers. Indeed that gentleman is looked upon as one of the first surgeons in Austria: he is at present engaged in a work, two or three volumes of which have been published, upon operative surgery, which promises to become classical in medical literature.

The library of the academy is rich in books of medicine, surgery, anatomy, botany, and natural history, and is adorned with a bust of Joseph II. by Ceracchi. It is open only to the professors and pupils of the academy. The collection of natural history contains specimens from the three kingdoms of nature; but chiefly of such ob-

jects as are interesting from their use in materia medica and practical chemistry. The collections of all kinds of surgical instruments, bandages, and machines, is extremely magnificent.

The anatomical museum is distinguished for its collections of skeletons and diseased bones, and of pathological preparations in wax; but above all for its rich collection of wax preparations illustrative of descriptive anatomy and midwifery. The preparations of this collection were executed in Florence, under the direction of Fontana and Mascagni, and are indeed an exact copy of the collection of the same kind in the Museo di Fifico at Florence. This collection occupies seven apartments. Two apartments upon the second floor contain the preparations illustrative of midwifery. This museum is open every Thursday, and is visited by all classes of the people. The Florentine collection is much admired by the crowd, whom it is well calculated to surprise. Every preparation lies under glass, upon a white silk cushion fringed with gold. The artists have not spared ornament even to the preparations themselves, which are as gay as colours can make them. It is well known that they were executed from drawings; but it may startle our readers a little to hear, that a series of engravings, taken from these preparations, is now publishing at a great expense in Vienna. Privatissima are also given by the professor of the academy, in which these preparations are demonstrated. We never could look at the collections of wax preparations in the Museo di Fifico at Florence, and in the Josephine Academy of Vienna, without acknowledging them to be excellently suited for teaching anatomy to grand dukes and emperors, or for affording an hour's amusement to any honest citizen whatever, curious perhaps in such matters. That they are of any considerable utility to professional students of anatomy, is by no means so evident.

The Josephine Academy is furnished with a botanical garden. It has a perpetual director and secretary; perpetual members or professors; actual members, or physicians and surgeons; foreign honorary members; and corresponding members.

A work of very considerable value on Hospital Gangrene has been recently published by Dr. Werneck, physician in chief to a division of the Austrian army, who has had very extensive opportunities of observing the disease during the late campaign in Italy, Hungary, Poland, and the greater part of Germany. It is only such points as are either of an original character, or such as serve to support doubtful points of theory, that require notice on this occasion. Dr. Werneck considers that the disease may appear either as affecting primarily the system, or developing itself originally in an open wound, without any specific affection of the general system. He thinks that it arises from a contagious virus, which is a modification of that producing the common typhous fever: in support of which notion he cites numerous facts, furnishing direct and very forcible arguments in its favour. Hospital gangrene, like typhous fever, he also remarks, may occur several times in the same individual, and affect persons living in an insulated manner, as well as in hospitals, transport-ships, or garisons, where numerous individuals are collected together; and it may be cured, under either of these circumstances, with the use of no other measures than such as are proper to maintain cleanliness of the wound affected. Dr. Werneck has some hypothetical opinions about the nature of the contagious virus, that it would not, perhaps, be right to neglect to notice; though it should be understood that they are not cited here because their truth is acknowledged. He supposes that the essence of the virus is of an alkaline nature, and is to be corrected by acids, the most efficacious of which, for the implied purpose, is the acetic acid; next to this, the muriatic and oxy-muriatic acids; and, last in the list, the other strong vegetable acids.

Similar in its general character to the foregoing treatise,

tise, that of comprising a good history of its subject, with observations and arguments qualified to support those of former well-informed writers, rather than demonstrative of any thing of remarkable originality, is the work of Dr. Ruft on the Egyptian Ophthalmia. His most important and interesting observations relate to the appearance of ophthalmia in the garrison at Mainz in 1818. The disease had been present in the army during the campaigns of 1813, 1814, and 1815; but it was not till the time above mentioned that it manifested itself in an alarming manner. Its prevalence occurred under the following circumstances. It affected only the men of one regiment, and, for the most part, only some Pomeranian, Lower-Rhenish, and Nassau, recruits. This regiment made a very harassing march from the Rhine to Silesia, and back again, in the autumn of 1817 and the spring of 1818. On its return, the men were crowded into a transport with several French invalids, amongst whom were many who had lost their sight from ophthalmia. On the arrival of the regiment at Mainz, about a third part of the regiment were found to have the itch. After this was got rid of, several other cutaneous diseases appeared, as scarlet fever, measles, varioloid diseases, and nettle-rash; and, on the decline of these, the affection of the eyes first appeared. It augmented in severity from June to September 1818, when it continued nearly stationary, in regard to prevalence and severity, till March and April 1819, when its extent became more confined; but its destructive agency was far from being suppressed until after the most strict measures for preventing its infection had been resorted to.

Whilst the Prussian regiment at Mainz was suffering from this disease, the Austrian soldiers were entirely exempt from it, though they both lived under the same climate and performed similar duty. But, whilst this argument in favour of the propagation of the disease by contagion is brought forward, we must not neglect to notice those which favour the opinion of its primary origin from casual external circumstances. The whole of the facts related by Dr. Ruft support the opinion of Dr. Vetch, that purulent ophthalmia originating from any common causes may become contagious; or, in other words, that a puriform secretion from the mucous membrane of the eye, from whatsoever cause, is capable of infecting, by contact, the mucous membrane of the eye of another person, and of thus producing a disease similar to that from which it originated. It should be considered that the disease first appeared in the recruits in the Prussian army; that the military discipline of the Prussian army is much more severe and harassing than that of the Austrian army; and that this severity was further increased as the number of the sick augmented. One part of the military discipline to which those recruits were submitted, was that of having the hair cut very close over the whole of the upper part of the head, on their entry into the ranks, whilst they adopted the practice of constantly wetting the back part of the head with beer and soap, for the purpose of making their hair grow *en queue*; and a very defective covering for the head was commonly worn. These circumstances may be considered quite sufficient to produce a disposition to ophthalmia, just in the way in which it was manifested. Dr. Ruft arrived at the garrison on the 5th of April, 1819. He immediately put in force the most effectual means for preventing the progress of the disease, supposing it to be communicated from one individual to another by contagion. The number of patients now decreased from month to month, till October, when the garrison was relieved, and the disease was supposed to be wholly destroyed. From June 1818, to the end of April 1819, the number of patients amounted to 1146; from this time to September 1819, only 652 new cases occurred; so that the whole number of patients was 1798; not including one regimental physician, two hospital surgeons, and twelve nurses, who were affected with the disease.

The method of applying sulphur in a gaseous form to the surface of the body, was first introduced by Dr. Galès of Paris. The result of the experiments and observations made on its employment, by a medical jury appointed for the purpose, was so satisfactory, that by order of government it was speedily introduced into all the hospitals of France, and was generally recommended in practice by the physicians of that country. It consists in applying the vapour arising from ignited sulphur to the naked body of the patient, seated for that purpose in a sort of wooden case, in the upper part of which there is an aperture for the head. To the circumference of this aperture a leather bag is attached, which is fastened round the neck, and thus prevents the fumes of the sulphur from reaching the eyes, nose, or mouth. The effect of the fumigation is to produce, in the first instance, increased action, and subsequently most profuse perspiration; greater, indeed, than we have ever seen produced by any other means. Hence, it appears to be indicated, 1st, where quick and sudden perspiration is of benefit; and 2dly, where sulphur appears to have a specific action.

The sulphureous fumigating baths were introduced into Germany by Dr. De Carro, of Vienna, whose name is already ennobled in the annals of humanity by the introduction of vaccination to the continent of Asia. The apparatus consists of a wooden case, something like a pulpit, in which a grown person can sit with ease up to the neck. This case is plastered internally. Its floor, formed by a stone of two or three inches in thickness, is raised so far above the ground as to require three steps to get into the case. Underneath are the parts necessary for producing the fumigation. The lowest story is the ash-pit, the uppermost the hearth for the sulphur, and the middle contains the fire. The uppermost division communicates freely with the interior of the case, by means of holes bored in the stone floor of the case. A pipe conveys the smoke from the division containing the fire into the chimney. Another pipe passes from the case into the chimney. This may be opened or shut by means of a valve; and, after the operation is concluded, it conveys what remains of the sulphureous fumes into the chimney. From this sketch of the apparatus, the method of using it is evident. The patient, perfectly naked, steps into the case, and seats himself on a chair, which may be raised or lowered at pleasure. He places his feet upon a stool. Both the chair and stool are perforated with holes, to admit the free passage of the fumes to all parts of the body. The uppermost board, forming the head of the apparatus, is now let down, so that the patient is completely enclosed in the case, with the exception of the head. Provision is made for preventing the fumes acting on the eyes, or entering the mouth or nose, as already mentioned.

There are various methods of applying the vapour to the face, when the disease has its seat there, the most simple of which is a flexible pipe, which communicates with the sulphureous vapour. The patient remains in the bath half an hour, or at most an hour. About five minutes before the conclusion of the fumigation, the valve in the sulphur-pipe is opened, and thus all unpleasant smell is avoided on opening the door of the case. The patient now goes to bed for an hour or two.

The cases in which the sulphureous fumigation is chiefly used, are cases of chronic rheumatism, psora, lepra, and other cutaneous affections, where sulphur is usually found of advantage. In all of these the benefit derived is very striking, and the shortness of the period necessary for the cure really astonishing. Some cases of old chronic rheumatism have yielded completely in a few weeks to this remedy. One reason of the great success attending Dr. De Carro's practice, was the judicious selection of cases which he made, whereas many practitioners have employed these fumigations far too indiscriminately, and then wondered at the failures which took place. The practice of sulphureous fumigation has been made

made known to the north of Germany in a work by Dr. Karsten of Hanover, under the title of "Ueber die Kraetze, und deren bequemste, schnell-wirkendste und sicherste Heilart, durch Baden in schwefelhaltigen Dämpfen, und dessen vortheilhafte Anwendung zur Behandlung chronischer Krankheiten der Haut und anderer Gebilde, nebst Beschreibung eines hierzu dienlichen Apparats, von Dr. Karsten, mit 2 Kupfern. Hanover, 1818."

The practice is now generally adopted in most parts of the continent, and has extended to Russia and Poland. Dr. Assalini, of the Institute of Sciences at Naples, has published "Medical Researches on Fumigations of Sulphur, Mercury, &c. Naples, 1820;" one object of which is, to describe the improvements and additions which he has made in the construction of the stoves employed for these purposes. Of these, the principal seems to be, the having rendered the machines more portable, and their use more economical, than those proposed by Galés, Darcet, and De Carro. He has added to his work numerous examples of the beneficial effects which have resulted from their use in his own practice in private life, and in the great military hospital Del Sacramento at Naples. Although so recently introduced into that kingdom, it is at the present period very generally employed and recommended by the principal professors in the capital and provinces. The author promises speedily to produce a second volume, with additional observations and experiments on fumigations and vapour-baths, together with two memoirs on the use of thermal vapour-baths, and on oily unctions with artificial fumigation, as a preventive from, and cure for, the diseases produced by the marshy effluvia commonly known under the name of *malaria*.

The remedies of which signor Assalini treats, appear to have received but little attention in this country, although the extent of their employment in France, particularly the sulphureous fumigations in the treatment of cutaneous diseases, have been long known, and their efficacy undisputed. We are not aware of the existence of any public institution for this purpose in any part of the kingdom; and the few private ones which have been established are limited in their operation, and far from being sufficiently extended or perfect. In addition to this, where such establishments exist, the expenses necessarily attendant upon their administration are, indeed, so great as almost wholly to exclude the lower classes of society, for whom they are most frequently necessary, from the advantages to be derived from them.

Our country has always been distinguished for its charitable institutions, and at no period more so than the present. Without taking from the merits of those which already exist, we are convinced that few measures would be more humane and beneficial to the community, than the formation of such establishments as we have spoken of, for the preservation of health, and more particularly for the prevention and removal of cutaneous diseases. We feel greatly assured, that support and assistance from the public would be readily given, and that an effort, a commencement, only is wanting to secure the execution of an object so necessary and so advantageous.

We omitted to notice, in its proper place, the University and the Anatomical Museum of Strasburg. Of the Museum, an account, with a catalogue of the preparations, was published last year (1820), by Professor J. F. Lobstein.

This collection is divided into two principal sections, one of which contains those of the healthy, and the other those of the diseased, structure of the human subject, and of animals. In the first, the organs are arranged with a view to their physiology, by systems, and according to their different functions. The human organs, followed by the corresponding organs of animals, are contained and classed in twenty compartments, which

also include the preparations used for demonstration in the courses of anatomical and physiological lectures. In the second, the organs, in a state of disease, occupy eighteen compartments, and are distributed in an anatomical order, according to general systems, and according to the organs which belong to the functions of nutrition, relation, and reproduction.

The osseous system may be studied with a view to comparative anatomy, by the assistance of the entire skeletons of fifty-three different animals, fifty-seven skulls, and a great number of bones, of every species of animals. The collection of preparations which contributes to demonstrate the structure and formation of bones, is extremely complete. Among many of these, the external and internal periosteum is beautifully injected. The fine injections of foetal bones have also succeeded equally well.

The myological preparations are, at the same time, connected with the subject of angiology, as they have been made from injected subjects: by this means they have been rendered doubly instructive. In addition to these, here are others of the foetus injected for the purpose of showing their structure. These preparations, when viewed by the assistance of the microscope, display a net-work of blood vessels superior perhaps to those in the collection of Prochaska.

The preparations which relate to the function of digestion are various and extensive. The alimentary canal of the human subject, from the commencement of the oesophagus to the anus, distended with air and dried, is compared with that of fourteen kinds of animals, prepared in the same way. The organs of digestion of man in particular, commencing with the salivary glands, are contrasted with the corresponding organs of different animals. The minute anatomy of these parts has not been neglected. The intestines are so completely injected, that the pupils can conceive a perfect idea of their villous coat, as it has been distended, and the papillæ erected by the resin of the injection. Portions of the intestines of the foetus, the vessels of which have been injected with isinglass, coloured white, are not inferior to the preparations of Lieberkuhn.

Twenty preparations of the lymphatic vessels elucidate the receptaculum chyli and the thoracic duct, the right lymphatic trunk, the lacteals of the mesentery well injected, the lymphatics of the liver, the large plexuses of the pelvis and vertebral column; the lymphatic vessels of the lungs, those which pass behind the sternum into the anterior part of the mediastinum, and the superficial and deep-seated lymphatics of the upper and lower extremities. Though these preparations are sufficient to give pupils an idea of the lymphatic vessels in almost all parts of the body, the absorbent system is still every year injected in the recent subject, during the anatomical lectures. The same is done with the other preparations of minute anatomy, angiological and neurological, and those which relate to the organs of sense.

The organs of respiration, after being examined in the human body, may be afterwards compared with the similar organs of quadrupeds, amphibious animals, and fishes. The minute structure of the lungs is rendered apparent, and especially the disposition of the bronchial vesicles, by preparations from the lungs of children. The larynx displays the superior and inferior laryngeal nerves on both sides, traced to their most minute branches. The thyroid gland is completely injected; and it is observed, that this is one of those organs in which the injection, when urged into the arteries, returns most readily by the veins.

With respect to the nervous system, here are perfect injections of the pia mater, and, in some instances, even the cortical substance of the brain has been reddened. The injections of the nerves are not inferior to those represented by Reil, in his work, entitled *Exercitationum Anatomicarum Fasciculus Primus, de Structura Nervorum*. All the cerebral nerves, with their distributions,

are illustrated by several preparations. Numerous researches have been made upon the brain itself, the results of which were published in the third and fourth volumes of the *Journal Complémentaire du Dictionnaire des Sciences Médicales*. The sections of the brain, made according to the views and process of M. Lauth, are preserved in acidulated water, which answers the purpose better than any other liquid.

The collection is equally rich in preparations of the organs of sense. With respect to that of touch, we may safely say it is impossible to carry the injection of the skin farther than is done in these preparations: and that none can easily be found so instructive as those which relate to the structure of the negro-skin. The nerves of the tongue are traced to their minutest branches. The pituitary membrane, subjected to maceration after injection, shows, in a very superior manner, the net-work of ramifications on this membrane. Among the preparations of the eye, we may notice the injections of the vessels of the choroid, of the retina, and of the canal of Fontana, by mercury, &c. The organ of hearing is illustrated by a very large number of preparations, and its most minute parts elucidated. As early as the year 1752, the old university possessed a collection of sixteen preparations of this organ, so beautifully arranged by hinges, and other mechanical means, that the various parts of the organ may be studied both separately and united, so as to show their relation to each other. These, the result of the great ingenuity of professor May, were presented to the Royal Academy of Sciences at Paris; and the Academy, in the historical part of its *Memoirs* for the year 1734, has mentioned it in honourable terms. These preparations, which they at present possess, have been since augmented by the addition of eighty-seven others, worthy of the originals.

The preparations which relate to the sexual system of the male and female, to pregnancy, parturition, and the products of conception, amount to 182 in number. In the injections of the testicle with mercury, the fluid introduced into the deferens has passed into the seminiferous substance. In two specimens they have succeeded in the almost entire development of the vas deferens and epididymis. The injection of the blood-vessels of the testicle with isinglass, coloured by cinnabar, has succeeded so well, that not only the pulp of it has been reddened, but, by the help of a magnifying-glass, a network of vessels can be distinguished upon the vessels themselves.

A series of fifty fœtuses shows their gradual increase, week by week, from the second month, up to the full term of pregnancy. Six preparations show the disposition and development of the foetal organs at the different periods of its life.

The second section of this work, containing the *pathological anatomy*, forms a larger part of it than the preceding one; and we regret that our limits will not allow us to give so complete an account of its contents as we could wish. We must, therefore, confine ourselves to noticing a few of its most interesting objects.

Under the article of calculi, are mentioned some of very unusual size from the maxillary duct. The collection of horse-bezoar (intestinal calculi) is also remarkable; the largest weighs nine pounds and a half. The biliary calculi are arranged according to the classification of Fourcroy: no class established by that chemist is wanting. The urinary calculi comprehend thirty-eight series, a number of which, broken, or sawn, display their laminated structure and the different colours of their strata corresponding to the three principal elements composing them; viz. uric acid, phosphate of lime, and oxalate of lime. Prostatic calculi, which are somewhat rare, are to be seen disposed in regular series, or in a circular arrangement, in the excretory ducts of that gland. Calculi from veins, which the author calls *phlebolithes*, have been carefully collected and examined;

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and a coloured representation, which the author considers unique, made of their laminated structure.

Under the article *caries*, a cranium is mentioned, which is perforated with apertures, in the form of a sieve, by a venereal affection. The patient from whom it was taken, was treated with mercury, and even now (as in 1758 when this preparation excited the attention of the curious) globules of mercury are seen in the little sinus, and ulcers in the internal surface of the cranium. This fact, observed by Fallopius and others, had been denied in modern times, till some experiments made at Tubingen in 1808, established its truth. In a specimen of caries of the pelvis, the ossa pubis et ischii are entirely destroyed, except the portion forming the symphysis of the former, and that which contributes to the formation of the acetabulum of the latter.

M. Lobstein observes, that it is not yet agreed what meaning is to be attached to the term *spina ventosa*. If swelling of the bone in its whole thickness, and a sponginess of its texture, such as results from cells of different dimensions, may constitute *spina ventosa*; if the cells are filled with fluids of various kinds; if there are osseous excrescences, either on the external surface, or within the above cells, the museum contains specimens of this disorganization; particularly in the os humeri, tibia, and fibula.

The last form of the disease of bone noticed, is that in which large masses of osseous matter entirely disappear, and no traces of them are found, except insulated fragments floating in an abundance of mucilaginous matter. The author first noticed this disease in the ribs, and described it with other analogous examples in the "*Rapports sur les Travaux exécutés à l'Amphithéâtre d'Anatomie*." Since the publication of that, he has observed it a second time on the ribs and pelvis of the same individual. The sacrum and ossa innominata were covered with a thick periosteum, more moist than usual; in detaching it, the compact external table of the bones could be at once removed: a reticular tissue was then seen with larger interstices, which were filled with a substance in colour and consistence very like currant-jelly. This disease, in the opinion of M. Lobstein, consists in a sponginess of the bone, accompanied by a secretion of an albumino-mucous matter. In the fluid of the numerous cysts, which supplied the place of the osseous matter destroyed, portions of bone, rendered thin and porous, were seen floating like half-dissolved sugar. The contiguous portions of bone had the same spongy appearance.

In speaking of the organic changes of *muscles*, their conversion into fat, to which the term *Myodémie* is given, is said to have been observed in two instances. In another the semi-membranous alone had undergone this change. After some remarks on the sympathetic coincidence in the deficiencies and diseases of the muscles of the two sides and extremities of the body, the author relates a case in which the biceps of each arm, and no other part, was found in a state of gangrene, in a woman who died in child-bed.

The morbid changes, &c. of the vascular system, are contained in the next chapter, from which we shall only mention a rare distribution of the aorta: its arch divides into two branches, which, by their reunion, form a space, and through this pass the trachea and the œsophagus. The irregularity is described by Hommel, in the *Commerc. Lit. Noricum*. 1777.

The remaining chapters are devoted to the pathological anatomy of the thoracic organs, those of digestion, of the urinary system, nervous and generative systems. Like the rest of the book, they are made up of a mass of valuable and interesting facts, stated with the utmost simplicity and clearness. Last of all is placed a Catalogue of the Preparations of this select yet extensive Museum. The whole number of them amounts at present to 3286, of which 1977 relate to physiological, and 1309 to pathological, anatomy. The Museum is open to the public

once every week; students have access to it daily; and, with a liberality still more worthy of praise and of imitation, foreigners are admitted at all hours, and at the first application. It is with astonishment we learn, that only sixteen years have been spent in the accumulation of this admirable collection: for, in 1804, there were only 212 preparations. The very complete Museum of Berlin, cost its founder, professor Walter, fifty-four years in its collection; but it contains not more than 2268 preparations.

Three hundred bodies are annually at the disposal of the faculty of Strasbourg. Such noble encouragement and opportunities of observation; the co-operation of the professors and the practitioners of the town, who transmit, as to a common centre, the result of their particular pathological examinations; the rare and curious objects which flock from the neighbouring country; the intelligence and zeal of the professors and students; all these circumstances combined, lead us to expect from this quarter still greater contributions to medical science.

Since we have travelled out of Germany; and got again into France, we shall detain the reader a few minutes while we describe the present state of the obstetrical art in that kingdom; which we are enabled to do by the very recent publication (1821) of the "*Pratique des Accouchemens*," by a real midwife, Madame Lachapelle, chief operator at the Lying-in Hospital at Paris.

This volume is one to which we have nothing similar in this country. It is the production of a female practitioner, placed by public authority in a most important official situation; and is no less deserving of notice from the rare occurrence of such publications, than from the just views and accurate criticisms on the state of the science on which it treats. But these are subjects on which it is not at present our intention to dwell, as we are inclined rather to take the opportunity of pointing out the state of public instruction in this science in France, and to contrast it with the deficiency in this point, which all must admit and lament as existing in this country.

From time immemorial, the only asylum afforded by the city of Paris to puerperal women, was a miserable ward in the Hôtel-Dieu; a principal midwife, with five or six pupils, whose studies lasted but for three months, ill sufficed for the number of births which occurred. The place was still more inadequate; the women admitted were heaped together, and commonly several lay at the same time in one bed. These inconveniences were of so serious a nature as to attract the attention of the government. In the year 4. of the Republic (1797), the National Convention decided on building a house for the particular purpose of receiving parturient women. Madame Lachapelle, in conjunction with her mother, the principal midwife of the Hôtel-Dieu, was charged with the direction of the service of the new institution. The dispositions for the arrangement and order of the whole establishment were formed in concert; and it is thus that the plan originally laid down has been more extensively applied. The number of pupils as midwives has since gone on increasing, as well as the number of individuals admitted. The former at present amount to 130 annually. This increase, as well as the organization of the school, was owing to M. Chaptal, then minister. M. Baudelocque was then made professor, and assisted to render the work more perfect. M. Dubois, who succeeded him, has preserved the order adopted by his predecessor, which we proceed to describe.

The pupils admitted at the School of Midwifery are expected to employ themselves as well with the relief of the patients as with their own personal instruction: such, in fact, is the principal object in view. This necessity forces them to a practical study, to which, in particular, they are indebted for their acknowledged superiority over the pupils of every other school. All pass a whole year at the hospital; and about a fourth part of their

number twice this period, serving in the second year to direct the new pupils. The newly-arrived pupils are separated into as many divisions as there remain old pupils who double the period of their stay. These last direct the division entrusted to them, assist at simple labours, and point out to their companions the particularities of examination, &c.

The patients admitted are first examined by the principal midwife, who rejects or retains them according to circumstances. The period fixed is the end of the eighth month. Simple deliveries are all performed by the pupils, in the presence of the division, and under the direction of the elder one, who serves as chief. Each pupil has the subsequent care of the woman whom she has delivered. On the occurrence of the least difficulty, the principal midwife is called in. If the use of instruments should be required, it is she who operates; if the delivery be difficult, although the hand alone suffices, she still has the charge of it; but easy manual deliveries are terminated, under her inspection, by one of the old pupils, so that almost all have, before the end of their second year, performed an artificial delivery. Very complicated cases, such as require the use of a cutting instrument, call for the presence of the professor.

Peritonitis too often prevails in the wards: a host of other diseases may also attack parturient women. It is then that, after being carried to the infirmary, they are entrusted to the care of the experienced and learned professor Chaussier, principal physician. Under his inspection, several female pupils note daily, and with most scrupulous exactness, the symptoms, periods, termination of the diseases, and the effects of remedies; they thus become accustomed to recognize danger, to prevent it, and, if not to remove it, at least to have recourse early to the assistance of medicine. Three times in the week the professor explains the theory of the science of midwifery. A lecture is given every day by the principal midwife; and a similar one by Mademoiselle Hucherard, for eight years acquainted with the principles of the art, and honoured with the title of "principal pupil," who also exercises the others on the model, in the use and application of instruments. Amongst the old pupils, those who have most facility in expressing themselves, and capacity for instruction, are charged with giving repetitions to the new comers, of the lectures of the professor, the midwife, and principal pupil. Amidst all these attentions to the principal object, the acquisition of accessory knowledge is not neglected. Under the direction of the principal physician, the apothecary lays down to the pupils the general principles of botany, and makes them acquainted with the most important plants and drugs. In the same manner the student in medicine attached to the institution makes some demonstrations on general anatomy, on that of the viscera, on the principal functions, on the muscles of the abdomen, and, lastly, on vaccination and venæsection. For these two operations the instructions are not solely theoretical; the pupils bleed and vaccinate as often as there is an opportunity, but always in the presence of the student in medicine. Such are the means of instruction presented to the pupils in midwifery; the wisdom of the administration has added useful encouragements. At the end of each scholastic year, several prizes are given by competition, on subjects relating to the science of midwifery; the principal is a golden medal: prizes are also given for clinical vigilance, the observation of patients, the study of botany, and for vaccination.

It is a circumstance perhaps only to be understood by the consideration of the inconsistency of human proceedings, that, while laws and regulations were early devised for the protection of the public from the pretensions of the ignorant and unprincipled in the practice of medicine and surgery, midwifery, a science connected as it is with the tenderest feelings and best interests of society, should be left in the hands of the lowest and most uninformed people,

people, at least as far as it regards the great mass of the public in every country. Nor has this delusion been confined merely to the careless and indifferent observer; even those whom their abilities might have been expected to have exempted from the errors of common minds, seem but too often to have thought, that information on difficult and complicated subjects might be acquired, as it were, intuitively; and that mechanical unobserving experience might supply the defect of early and well-grounded instruction. It needs but little either of intellect or inquiry, to see at once the fallacy and absurdity of such an idea.

We are aware that at the present period, in this country, a considerable portion of the male practitioners in midwifery, are individuals whose *compulsory* professional education may be fairly supposed to render them adequate to the performance of the duties they undertake; but it is notorious that such is not the case with the females, on whose care and skill the lives or the future comfort of women in the lower classes of life, and in remote parts of the country, are so completely dependent. Nor can it be unknown, that in every part of the kingdom, even in the metropolis, no security exists against the ignorance of those who may choose to enter upon the practice of this most important branch of the healing art; that an acquaintance with, or course of instruction in, its principles, forms no part of the qualifications required by the three corporate bodies, whose members and licentiates form the greater part of private practitioners in England. Nay, on the contrary, at least two of these are more disposed to discourage than to countenance the extension of this division of practice among their members.

After an attentive consideration of the difficulties and the inconveniences we have alluded to, it surely requires no argument to convince every uninterested individual, whether professional or otherwise, of the necessity for some regulation of this branch of the profession, and of the important advantages which would accrue to the public from the organization of a class of *female practitioners*, well qualified for the performance of the duties they are intended to discharge. To the institution of such a class in this country, we can see no well-founded or disinterested objection; and it must be allowed that nothing seems better adapted to attain the object in view than the system which has received so ample a trial in France, and of which we have given an account. Of this at least we feel convinced, that a trial only is required to exhibit its excellence, and ensure its adoption. Should such a plan be ever put in execution, it would doubtless be most advantageous to combine its employment, as has been done in France, with the internal management of the lying-in institutions already in existence, especially in the metropolis. But here we must check ourselves, as it must be confessed, that it is much more easy to proclaim the existence of defects than to apply appropriate remedies, and as it is far from being our intention to assume a task that we hope to see in more competent hands.

GREECE AND TURKEY.—In turning to the consideration of Greece, the land of heroism and classic recollections, we find that 3000 years have glided over without any improvement in medicine beyond the practice of the Father of Medicine. Indeed in many instances we might almost wish that the practice of Hippocrates only was followed, without variation or improvement; but the physicians of Greece and of Turkey are much occupied in discussing the theories of Brown or of Boerhaave; and, though occasionally a flash of ancient fire and of the true philosophy of the pristine Hellenian has animated the Greeks, yet the major part are contented with these vain and fruitless enquiries. This state will not probably last long: the despotic government of the Turks may be considered as the cause of the long supineness of the Greeks; and, whether the struggle for their independence be successful or not, a spirit of emulation and en-

quiry exists at present in that nation, which cannot fail of producing much advantage to philosophy.

Of the mode of visiting and treating patients in Turkey, an amusing account is given by Dr. Neale, late physician to the British embassy at Constantinople.

After adverting to the belief of the Turks in predestination, Dr. N. proceeds thus. "Still, fatalism and apathy have their limits; and the proud infidel, in the hour of sickness, does not disdain to invoke the assistance of the *Giaour* to delay the approach of death. Of this I had a memorable instance within a few days after my arrival at Terapia, when, very unexpectedly, I received a message from the emperor Selim the Third, to visit his mother the sultana Validè. Mr. Pisani, the senior dragoman (interpreter), was the bearer of this request; and the following morning I set off by water for the seraglio, accompanied by one of the junior dragomans. We were put ashore at a quay near Baktchi Capoussi, where we found a bostanji in waiting, to conduct us to the house of the principal court-physician, who lived in a narrow street adjoining the wall of the seraglio. On arriving there, we were informed that he had already gone to see his patient, having left instructions that we should follow him, which we did, entering the gardens by the little white gate near the chapel of St. Irene. We passed a guard-house of bostanjis on our left, and then proceeded under an avenue of lofty cypress-trees, towards a second guard-house, whence we were conducted to a detached pavilion, in which we found the Hekim Basha, or Turkish physician, Mahmoud Effendi; a Greek physician, named Polychronon; the Kislar Agassi, a hideous Ethiopian, the chief of the black eunuchs; the Hazni Vekili, also a black eunuch, keeper of the privy purse; and some der-vishes and muftis. After being introduced, and going through the usual routine of pipes, coffee, sherbet, and sweetmeats, Polychronon, conversing in Latin, entered into a detailed statement of the malady with which the sultana was afflicted, namely, an inveterate quartan ague, of upwards of eighteen months' standing. From this she had recovered more than once; but had relapsed as often, owing, in part, to her own want of due caution, and to the officious interference of a set of muftis who beset her, and forced upon her large draughts of iced water, in which they immersed talismans, assuring her that they would establish her convalescence; but, on the contrary, these draughts invariably brought back the cold fits of her ague. Upon the last relapse, some days before I saw her, she had, during the cold paroxysm, been suddenly bereft, in her lower extremities, of all power of motion and sense of feeling; and it was upon this point, and some others also, that my opinion was requested. Indeed I was to decide, as I found, between three of her physicians who called themselves *Boerhaavians*, and four others who professed themselves strict *Brownians*, as to the expediency of prescribing a cathartic medicine; the former pressing the absolute necessity of such a remedy after five days' constipation, and the latter most foolishly declaring it to be perfectly inadmissible, according to their interpretation of the doctrine of Brown. This being premised, we all accompanied the Kislar Agassi to an adjoining kiosk, in which was the sultana. After exchanging my shoes at the door for a pair of yellow slippers, we entered the royal apartments. On a mattress, in the middle of the floor, was extended a figure covered with a silk quilting, richly embroidered. A female figure veiled was kneeling at the side of her pillows, with her back towards the door of entrance; and the Kislar Agassi beckoned to me to kneel down by her side, and examine the pulse of the sultana. Having complied with this request, I expressed a wish to see her tongue and countenance; but that I was given to understand could not be permitted, as I must obtain that information from the report of the chief physician. The most profound silence was observed in the apartment, the eunuchs and physicians conversing only by signs. The Hazni Vekili

then took me by the arm, and turned me gently round, with my face towards the door of the entrance, over which was a gilded lattice, concealing the emperor, who had placed himself there to witness the visit. Our stay in the room did not exceed fifteen or twenty minutes. The four large windows were shaded externally by gilded lattices, and the intervening pannels were covered with mirrors and arabesque tapestry. The divan, which encircled the chamber, was veiled with crimson cloth, richly embroidered with gold, surrounded with cushions of the same description; and the floor was covered with a superb Persian carpet. On our return to the first pavilion, I, of course, coincided with the Boerhaavians, and wrote a prescription to that effect. Indeed, had there been a prince of any other European court, it is probable that a large bleeding would have been decided upon; but, from the ignorance and prejudice of her attendants, I found it impossible to convince them of its necessity; and on considering that the mistakes, real or imaginary, of the Turkish court-physicians, are frequently visited by the bow-string, I had but little inclination to bring the lives of my colleagues into farther jeopardy. The Hekim-Bachi and Hazni Vekili therefore carried my prescription, and interpreted it to the sultan, who, in return, sent back a complimentary message, and a purse containing one hundred and fifty sequins."

In case our readers should feel interested in the fate of the patient, we must add, that the sultana sunk under her illness in the course of a week: but her age was seventy-two; and her son, far from giving way to the barbarous practice of punishing the court-physician, signified to him that the event was evidently in the course of nature, and should make no alteration in the confidence which he enjoyed. This prince, deserving of a better fate, was the unfortunate Selim who lost his life by an insurrection of the Janissaries in 1807.

But at length we have better news to communicate, and such as will be highly gratifying to our readers. For we think that all who interest themselves in the progress of science, and more particularly in that of medicine, cannot but feel pleasure in learning that in Turkey, a part of the world where knowledge has hitherto made the most inconsiderable advancement, where every thing is under the dominion of prejudice, and the most beneficial suggestions are opposed with the most obstinate animosity, the government has lately caused to be composed and printed in the vernacular language, the first work on anatomy and medicine which has been produced by the press at Constantinople. Whether we consider the aversion entertained by the Turks for the most useful knowledge which does not accord with the spirit of the Koran, or which is derived from Christians; or their implicit obedience to the oulêmas, or priests, whose interest and policy have uniformly prompted them as much as possible to enslave and paralyze the national mind; this revolution in the opinions of Mussulmen appears in an equal degree extraordinary.

The only step which the Turks have taken in civilization for the last century has been the adoption of printing, (first introduced at Constantinople so lately as 1726,) but this improvement was fast losing its beneficial effects till the reign of the unfortunate Selim III. just mentioned, who somewhat revived the declining state of dawning literature. But the prejudices and religious scruples against every kind of representation of human figures; the religion which forbids the contact of blood, as a pollution; the law against the opening of bodies; and, lastly, the belief in predestination, which ranks providence and indifference to the accidents of life among religious virtues; all these, by their combined operation, afforded, till the present time, insurmountable barriers to the progress of anatomy and surgery. From all these obstacles then, the work of which we are about to give an account, cannot fail to excite general attention, and to constitute an epoch in the history of the Ottoman Empire.

This volume, printed at Constantinople in the Turkish language, contains about 300 folio pages; and, what is more particularly worthy of notice, it is accompanied by fifty-six indifferently-engraved plates, in which the human figure, and the various objects of anatomy, are depicted. The greater part of it has been copied by the author, Châni-Zadeh Mehemed-Ata-Oullah, from foreign productions of a similar nature. According to some communications made to M. Bianchi by a person lately arrived at Paris from Constantinople, this Mussulman must be the son of an old and principal physician of the government, whom his father sent to Italy for the purpose of prosecuting his studies, and who at his return immediately engaged himself in writing on anatomy and surgery.

The principal physician of government, called in the Turkish language *Hekim Basha*, arrives at his dignity after having filled the office of *cadi*, or judge; and is chosen from the religious or judicial officers. It is only when he has arrived at the end of his career, and at the rank to which all his colleagues may aspire, that he is nominated as the chief physician of the empire, without having undergone any medical education which could entitle him to the office. He has, therefore, at the same time to fulfil the duties of his other employment, and to direct his attention to the study of medicine and surgery, a circumstance which will enable us to judge of his necessarily-limited acquaintance with the knowledge required for the exercise of his new profession; though he is ex-officio at the head of the medical department in the empire; as the physicians, surgeons, and druggists, subject to the Grand Signior, are nominated by the principal physician of government, a source from which he derives a considerable revenue.

M. Bianchi observes that, notwithstanding the prejudices, or rather the superstitious respect, of the nation for ancient customs, many individuals are to be found among the public officers, who have a sufficient degree of intelligence to induce them to countenance improvements calculated for the general good. He was more particularly led to make this remark, at the time of the plague in the year 1811-12, when he was commissioned by the French consul to translate into Turkish the instructions contained in the work of Guyton-Morveau, on the means of destroying the infectious properties of air by the aid of chlorine. The translation was put into the hands of the governor of Smyrna, and was received with equal pleasure and gratitude. The method was not only at once adopted by him, both as an antidote against infection, and a means of purifying contaminated apartments and goods, but he also ordered its adoption by all the members of his family, at that time engaged in the principal administrations of Smyrna, as well as by the Greek and Armenian communities of the same city. However satisfactory and beneficial the plan may be, it is at present highly probable, that the tragical death of the governor, which took place in 1817, by order of the Grand Signior, and the disgrace of all his family, will plunge into oblivion not only the plan itself, but also the salutary effects by which it was followed; a result which is inevitable in a nation, among whom instruction and information are not general, and men, disposed to protect the interests of science, have only an ephemeral existence.

It is very much to be wished, that this first appearance of a taste for medicine and surgery, by becoming more general in the East, may produce physicians in that part of the world, who would be better calculated than the present race, to assume the guardianship of the public health; for, with the exception of some foreigners at Constantinople, and the other towns of the Levant, who acquit themselves with reputation in their profession, the whole empire is infested with a mob of charlatans and adventurers, who are constantly committing devastations on mankind by the exercise of a profession, of the first elements even of which they know nothing.

The work of Châni-Zadeh, in the opinion of M. Bianchi, is written in a style which is clear, concise, and elevated: most of the technical expressions have been borrowed from the Arabic, though sometimes, and especially in the anatomical description, the author has retained the Greek or Latin word employed in the original source from whence he derived his information.

The following extracts, which M. Bianchi has translated from the text of the author's first preface, contain some interesting details on the arrangement of the book, the nature of its contents, and the motives which induced the sultan Mahmoud to permit its publication by an express edict. The author of this notice believes that the work of which he has given the outline may be of utility to those who have an idea of practising medicine or surgery in any part of the Levant. The singularity of the Oriental expression, and the rhodomontade style of the following extract, will perhaps render its perusal not uninteresting, more particularly as the production is of very recent date; we are, therefore, induced to give it in its entire state, as a curiosity in medical literature.

"Medicine and anatomy are elementary sciences, and the objects of general study. They fall within the cognizance of philosophers, literati, and the ministers of religion. Not only learned men and people of sound judgment acknowledge that the aim of these sciences is the discovery of truth, but from the remotest antiquity they have always been considered, by the highest authorities, as constituting a branch of valuable and honourable knowledge. The advantages which result from their cultivation are not confined to the human race, but, from the united testimony of the learned, their beneficent influence embraces all animated nature. The benefits of modern medicine are most obvious; and anatomy, founded on accuracy and attention, has arrived at such a degree of perfection, that every thing which now concerns the treatment of internal maladies, the dressing of wounds and ulcers, and the cure of infirmities, is, by an admirable disposition derived from the rules of art, divested of doubt and exempt from danger.

"In conformity to these considerations, Khamfeï Chani-Zadeh has deposed at the foot of the supreme throne the three following books, bound into one volume.

"The excellent Judge, he who is the regulator of the laws of the state, the Plato of the Empire and of the Khalifat, the sovereign to whom fate has revealed science and wisdom, the Sultan of Sultans, endowed with the wisdom of Solomon, the monarch whose glory recalls the time of Cosroes, the King of Kings, invested with the power of the age of Djemchid, the Sultan, the Son of a Sultan, the intrepid Sultan Mahmoud; Khan, the son of the glorious Sultan Abdul-Hamid-Khan, (may the sun of his power never cease to illuminate the course of his victories and glorious enterprises!) his Majesty our Lord, having at length condescended, during many days, to examine and to make profound observations, with justice and discernment, on all the truths of the above-mentioned book, acknowledged that, independently of the great benefit which would be derived from it to the Ottoman empire (the duration of which is eternal), and also to Mussulmen, it had never yet been preceded by any work, the advantage of which could be at all compared with it; and that, as such, it was worthy of being considered among the precious and innumerable productions which have rendered his fortunate reign illustrious. His majesty, from all these considerations of general good, attached the greatest importance to the circumstance of the printing and publication of the work under his supreme auspices. This determination came opportunely to justify the precept, 'That Kings are inspired.'

"The figures necessary for the work having been arranged and corrected by the author, who procured an edict marked with the signs of wisdom and happiness, from the execution of which the work was to be printed

at the imperial press; from this instant, the old and well-attached servant of the sultan, he who was brought up in purity and sincerity, and under the shadow of the phoenix protector of his highness, one of the guards of the archives, and prefect of the imperial press, Essêid Abdul Rahim, after having recited the Bismillah, ('*Bismillâh errahmân errahîm*; In the name of the merciful and compassionate God,') immediately commenced the work. But what was purely the result of the miraculous power of his majesty is, that, without the necessity of having recourse to foreign means, by the assistance of Allah, and by uniting the numerous artisans to be found in Constantinople, the necessary figures were engraved on fifty-six plates of copper. On the other hand, the daily corrections of the author caused the printing of the work to be soon terminated. At length, thanks to God, who knows all things, in the month of April, 1820, the book was entirely completed and delivered to the binder. It must be acknowledged that, from the useful facts it contains, the other productions which have rendered the reign of his majesty illustrious cannot be compared to it. Doubtless it has procured for his majesty's slave, the author, under the shadow of his majesty's power, the numerous rewards with which his highness has condescended to honour him.

"May the Deity, whose power is infinite, be, till the day of the last judgment, the support of our lord and master the Emperor of Mussulmen; and may he, for their benefit, perpetuate our sovereign's power, and prolong his precious life. Such are the wishes which I form in honour of the Prince of Prophets."

Immediately after this unique preface, a table of the contents of the three volumes is given. This table is followed by a second preface, consisting of little else than a repetition of what had already been said by the author. We are there informed that the production had been before presented to the sultan Mahmoud in the year 1815-16, under the title of the "Mirror of the Objects in Human Anatomy." The author concludes by observing, that, among the causes which have contributed to the publication of the work, may be enumerated the reproach, made by many persons, of ignorance in the physicians of the empire with regard to the new doctrines in anatomy and medicine.

As to the works of the ancients on medicine, and particularly of the Arabians, they are perfectly known to the Turks, since they are to be found in all the public libraries. Toderini, in his time, reckoned more than a hundred volumes in the library of St. Sophia, independently of the works of Avicenna and Averoes. They have translated the works of Hippocrates, Andromachus, Rufus, Galen, Dioscorides, and the most celebrated masters of Greece. The works of European physicians are also not unknown to them; for, in the library of Raguib, pacha at Constantinople, there is a translation of the works of Sydenham; and it is well known that, under Mustapha III. the friend and protector of Ottoman literature, a translation of the Aphorisms of Boerhaave was produced; but, till the present time, no work on medicine or surgery had been printed.

The first volume of Châni-Zadeh's book contains all that relates to *anatomy*, and the explanation of the fifty-six plates, which, as well as all that he has written, appear to have been taken, in part, from the Italian translations of the works of Bertin and Palsin. The second volume is on the corporeal and intellectual faculties of man, or *physiology*. The third is on the nature of diseases and the employment of remedies, constituting *nosology* and *therapeutics*. This is preceded by two prefaces and an introduction: the first preface contains only a series of quotations from the Koran on the utility of medicine, eulogiums on the sovereign, and apologies of the author for the errors which may have insinuated themselves into his production.

It is principally with the view of assisting those who are studying

studying medicine, that the author, Châni-Zadeh, resolved to compose his work on the rules of science, the benefit of which he considers infinite. He therefore particularly recommends the repeated perusal of it, in the order in which the articles occur, as the best means of avoiding error and forgetfulness. As the doses of medicines have been determined from the period of infancy to that of manhood, he notices the necessity, in their administration, of considering the age, sex, and strength, of the patient, as well as the nature of the climate. It is useless, he thinks, to collect a great variety of remedies for the same disease, in order to indulge the caprices of patients; for most of the complicated preparations are to be found in "The Provincial" and other treatises on *Materia Medica*. At the end of the work there is a list of various applications, with a reference to all those complaints for which they are necessary. Independently of medical men, the author solicits the attention of those persons who may peruse his work, to dedicate the same proportional attention to the several articles as he devoted to their composition. As the work is intended equally for those out of the medical profession, its technical abbreviations may be passed over when they are not intelligible; but, in general, only simple phrases have been employed in subjects relating to general utility. The author disclaims the presumptuous thought, that the advantages of his book will extend to the whole world; though he, at the same time, flatters himself that it will be useful to some individuals. For admitting, says he, that a physician in possession of the work had no other merit than that of understanding it, he would not be capable of doing so much good as an accomplished medical man. The latter would always be superior to him, from his practical knowledge; but, on the other hand, practice alone is inadequate to constitute a learned professional character; whatever may have been his disposition or opportunities, a profound study of books will be equally necessary. Of these assertions, he considers that the present work furnishes numerous satisfactory proofs. In all instances he desires, as the recompense of his labour, not only the glory of having served his country, but also the satisfactory conviction of his having contributed, by his unremitting efforts, to the benefit of mankind.

After the second preface comes the author's Introduction to Therapeutics, the arrangement of which partakes of that of other works on the same subject: the third and last book concludes with a *Pharmacopœia* in Arabic and Turkish, containing 319 formula, applicable to all sorts of diseases.

Abridgment of the General Table of Contents.—Book I. Anatomy. Part 1. Osteology; Part 2. Myology; Part 3. Splanchnology; Part 4. Angeology and Neurology.

Book II. Physiology; comprehending Natural Faculties, divided into 22 articles.—Corporal Faculties, in 21 articles.—Of Instinct, or the Animal Faculty, 13 articles.—Of Diseases in general.—Of the Nature of Diseases.—The Analogy of Diseases, divided into 8 articles.—On Aversions produced by different Causes.—On the Signs or Characters of Diseases.

Book III. Nosology and Therapeutics; comprehending 208 folio pages, and 55 articles, on separate Diseases.

Vaccination is treated of, as M. Bianchi says, in an interesting manner, considering that the author is a Mussulman. He dwells particularly on the importance of the discovery, and insists on its advantages over inoculation, which had been long known among the Arabians. He says, on this occasion, that small-pox, though before unknown, penetrated into Turkey at the conquest of Egypt by Selim I. The history of vaccination is given from the work of Dr. Caran (De Caro), a German physician, who, according to M. Bianchi, first introduced vaccination into the East. The author notices also the experiments made in vaccination, in the year 1800, at the palace of lord Elgin, at that time the British ambassador at Constantinople, as well as those instituted at Vienna,

in the presence of the emperor of Austria, and the encouragements afforded by this sovereign, who caused his own children to be vaccinated. He quotes entire passages from the different treatises on vaccination by Drs. Ranque, Laurens, Maudine, and Guillotin: he more particularly recommends the work of the latter to those who are willing to be convinced of the benefits of vaccination. The subject is terminated with a conclusion, which is entirely original, on the mode of performing vaccination, and what is necessary in the operation, of which the principal periods and complications are described. The vaccine lymph is observed not to be always peculiar to cows, and to be portable. He also informs us, that which was first obtained at Constantinople came from America, England, and other countries; but that it is also to be procured in the village of Aïaz Aga, in the neighbourhood of Kiadkhaneh, in the environs of Constantinople; and that from the last source many thousand persons have been vaccinated.

M. Bianchi informs us, that there have long existed, at Constantinople, hospitals for sick Mussulmen, which are called by the Turks *Tab'-y-Khaneh*. The greater number of the imperial mosques have such establishments annexed to them, but the most considerable are those of the sultan Bayezid Selim and sultan Suleyman. The following temples have also institutions of the same nature; viz. Khafseki Djamy, Tschinili Djamy, Mihrmahsultane, Djamisi, and Kilidj-Aly-Pacha Djamisi; as well as the Selimie, at Scutari. There are also asylums where patients, reclining on sofas, are dieted in a careful manner, as in hospitals properly so called; but the assistance of medicine is entirely neglected. From the word *Nev Idjad*, or New Creation, M. Bianchi was led to suppose that the author, Châni-Zadeh, alluded to establishments founded by the late sultan: but, as Bianchi himself had witnessed the dilapidated condition of all the hospitals, after the death of the above sovereign, and as he quitted the Levant in the year 1815, he thought proper to procure the most recent information as to the state of them. He was accordingly favoured with a communication from Dr. Maugin, physician of the French hospital at Pera, in the suburbs of Constantinople, which is chiefly devoted to the habitations of Europeans. As it contains many satisfactory details of the actual state of the charitable institutions of Constantinople, we shall insert the greater part of it.

"Sir; I send you the information which you requested on the state of the hospitals and druggists' shops of Constantinople, at the time of my departure; as well as of every thing which concerns the progress of medical science among Mussulmen.

"In the reign of the sultan Selim, two schools were instituted at the Arsenal, one for the instruction of pupils in mathematics and nautical science, another for the teaching of medicine and surgery. The first of them was under the direction of M. Brun, a French engineer; the second under that of M. Gripili, who is of Greek descent. Both these institutions flourished as long as the sultan reigned, and while his meritorious favourite, the pacha Hussein, lived; but the death of this admiral, and the dethronement of the sultan, have involved in oblivion both the noble establishments.

"Barracks were also constructed at the same time at Scutari, in the faubourg of Pera; those of the arsenal and of Topkhana were reformed, and another was erected at Levent-Tchiftlik; so that each was provided with its hospital. They were all well furnished, but particularly those of Scutari and Levant-Tchiftlik; there being an European physician, and a shop for medicines, at each of them. At present no traces of such places are to be seen: the barracks and hospitals have been burnt, from the spirit of insubordination on the part of the Janissaries, at the time of the revolution of Mulkapha Baraiktar, in November 1808.

"The hospitals of the Arsenal, of Topkhana, and the faubourg of Pera, are now nothing more than chambers of

of barracks, where the soldier who is ill expires of the plague, or any other complaint, unless nature is successful in the contest. There are two or three quackish practitioners, almost dying of hunger, to whom the *Miri*, or public treasury, allows forty or fifty piastres per month, (25 or 30s.) in order that it may be said that there are titled physicians at the places. They go much less with the view of treating their patients' diseases, than with that of treating themselves with wine and brandy, which they invariably prescribe for every disorder.

"When the Turkish fleet is put into commission, the disorder is somewhat less; but there is a considerable increase of expense, particularly for the medicine-chests, which the physician causes to be prepared at some druggist's shop in Constantinople. On this occasion, it is a matter of speculation between the two parties, who have a perfect understanding with each other, and charge a great price for an inconsiderable number of medicines. But custom demands that each vessel should be provided with its medicine-chest, and much economy could not with propriety be instituted in such instances. But to what utility can all this tend, either on land, or at sea, when well-qualified medical men are adequately recompensed for their attendance on the sick on-board the admiral's ship alone?

"At Constantinople there are at present only hospitals for the reception of those affected with the plague, and for patients suffering either under external or internal diseases which are not of a contagious nature. The French government has two: one at Galata, for complaints of an ordinary kind; the other in the faubourg of Pera, for such of their unfortunate countrymen as are attacked by pestilential diseases. The Greeks have three great hospitals, of which two are devoted to the plague. The Latins have, in the faubourg of Pera, but a single hospital, which is destined equally for the relief of those suffering with the plague and with other diseases. These are all the hospitals which now exist at Constantinople: it must be acknowledged that, while such establishments do honour to humanity, the individuals entrusted with the direction of those for the plague are accustomed to engage in speculations, no less barbarous than insolent, on what each patient is likely to leave them: for it is a well-known fact, that they regard themselves as the universal legatees of all the unfortunate objects that are brought there, and that the death of the patients is the more certain if they are so unlucky as to possess any money or jewels. In addition to such villainy, they have the audacity to send for sale, at the bazars of Galata and Constantinople, the spoils of their ill-fated victims.

"No druggist's shop in Constantinople is directed by a Turk: most of them belong to Greeks, a few to Armenians, and some to Europeans. As this profession requires previous study, the Turks, who have no academies nor faculties of medicine, and who never travel to gain information, feel their incompetency to undertake the superintendence of such establishments.

"It was in the month of June 1820, that I quitted Constantinople; and since saw with much pleasure, and a lively interest, the work which you showed me. The great progress just made by the Turks, in the publication of this production, by order of the sultan Mahmoud himself, at once proves that the sovereign prefers discountenancing the prevailing prejudices, and that he is in possession of sufficient power to silence fanaticism, which would not have failed to advance loud remonstrances against the impiety of representing human figures: but such complaints might have been answered by the assurance that the plates were not executed with trifling or futile views.

"If reason should ever gain the ascendancy among these people, the sultan will establish hospitals, and cause lazarettos to be constructed at Proti, an island opposite the capital, in order to arrest, at the port of Constantinople, the scourge which annually decimates the Ottoman empire. Vol. XIX. No. 1288.

pire. I have the honour to be, &c. MAUGIN.—Paris, April 1821."

GENERAL PATHOLOGY.

IN the present philosophic age, it appears needless to discuss the propriety and necessity of being guided by reason in our pathological investigations. Very few professional gentlemen will now be found strictly empirical; and those few are among the least honoured and least deserving in our profession. There is something in the human mind so prone to enquire into the cause why, and the reason wherefore, that the veriest empiric in the practice of physic will never be contented with attaching himself to facts, as he professes, without regard to inferential reasoning. There is something so gratifying to one's love of science, something which so evidently leads to better information, even in the vaguest explanation of natural phenomena, that we cannot be surprised that it has been attempted in all ages.

Yet, in the course of our history of medicine, we have had frequent occasion to show how fatal has been the result of too much theory. Independently, however, of the circumstance that what is injurious to the progress of science in its infant state, may cease to become so when it is more advanced, we have found hitherto no system of medicine which has sufficiently accounted for all morbid phenomena, or in which many huge gaps and deficiencies have not been filled up by gratuitous assertions.

In the infant state of medicine there can be no doubt that theory often exerted a most decided influence on that science. But the paucity of facts, the data whence the theories of the ancients were framed, were the cause of their frequent errors. They were like labourers attempting to build a lofty palace with a few stones. In our own time, however, we have so far advanced in the accumulation of facts, that, though much remains to be done, we are compelled in some measure to generalize and systematize our knowledge, which else would become too burthenome for memory. To follow up our simile, we may be said in our own time to be in possession of materials sufficient for building a stable edifice; and hence we may now look forward to the establishment of a system which, to use the arrogant expressions of Darwin "may not moulder, like the structures already erected, into the sand of which they were composed, but which may stand unimpaired like the Newtonian Philosophy, a rock amid the waste of ages."

We shall not pause here to enquire into the utility of systems of medicine. Our periodical medical publications have lately raised much uproar against systems. It must be obvious to every one, however, that a series of dry insulated facts, or of reasonings applicable only to a limited number of phenomena, can never be sufficiently remembered, or indeed perfectly known. Provided, therefore, we wander not into the mazes of hypothesis, provided our analogies are not forced, or our classifications likely to lead to erroneous methods of practice, it must be allowed that we are advancing our knowledge, clearing away many erroneous notions, and reconciling many contradictory opinions, by taking general and extended views of disease. See vol. xvii. p. 245.

We have said that the knowledge of the structure and functions of man should precede the study of pathology. Of the animal structure we have given an ample account in the first volume of our work, under the article ANATOMY; of the second we propose to treat under the article PHYSIOLOGY. In the mean time, the more clearly to develop the opinions we have adopted, it will be necessary to give a short sketch of the economy of man, and of the most prominent systems and most important structures which belong to his organization, the better to understand in what disease a deviation from this state consists.

In the organization of man, then, the first system to be considered

considered is the *nervous*. It consists of the cranial brain, the spinal marrow, nerves, and ganglia. By means of this system, all mental emotions are communicated to the other parts of the animal frame, and, through its medium, all external impressions are communicated to the mind. We observe likewise a *fibrous* structure of different kinds in various parts; as muscular, osseous, &c. the most general and important of which are the *muscular* ones. To these is added a fundamental *cellular* structure, which appears to connect all parts of the other systems together; and which has various appearances in regard to diversity of substance, and indeed in regard to the secretions derived from it. The union of these three systems takes place in various modes: in some cases in tubes, or on membranes, &c. &c. and the more remarkable of these unisons may be aptly divided into the digestive, respiratory, sanguiferous, secretory, and absorbent, systems; and this physiological division we have taken as the basis of our arrangement, which agrees with the excellent one lately made by Dr. Good, in his *Physiological System of Nosology*.

Many objections have been made however to all the present arrangements; the most important of which is, that, by allowing the attention of the medical practitioner to be exclusively directed to one system or to one organ, it prevents that due attention being paid to morbid catenations, which the practice of physic imperiously demands. There is nothing, however, in the nature of nosology which renders this error a venial one. It must be allowed that morbid impressions are generally primarily made on one particular tissue or organ; and it must be allowed too, that a system which is secondarily affected, often suffers the most severely; or that the system secondarily affected may be the most important to life, and hence our attention should be chiefly directed towards it. We will however venture to assert, that whoever has assiduously studied the structure of parts and their physiology, cannot fall into the error of confining his attention to one part of the animal economy to the exclusion of the rest.

To render this more plain, we shall proceed with some further account of the action of the different systems above mentioned upon each other. If the animal frame were so constructed that no intestinal motion was necessary for the continuance of its external actions, we could readily suppose it possible that the nerves would be unaffected by any change in the muscular system, and the latter might produce its functions without any impression from the former. But, when we see, that the cerebral functions can only be continued while blood, possessing certain properties and component parts, circulates according to given laws through its substance; and when we consider that the muscular system can be called into action only by the nervous system, either directly by means of nerves, or indirectly by fluids, deriving some of their properties from the nerves; then we cannot fail to have the most certain conviction of the action of the one on the other.

It is extremely difficult to know at what part to begin first, when speaking of actions which are thus always dependent one on the other, and which are always in a circle. We take, however, the heart; and, supposing it of a fibrous fundamental structure, and supplied with blood and nerves, we proceed to consider its action. A cavity of the heart called the left ventricle, having received a certain supply of blood, propels it by contraction into the aorta, and from it into the smaller arterial branches. These branches further assist the motion of the blood by contracting their circumference, the power of contraction being in an inverse ratio to the diameter of the tubes. The terminations of arteries are further assisted in propelling the blood by the property of capillary attraction; veins restore the fluid to the heart in a direct stream, altered however in its properties; for vessels called *secretory* have, by means of an affinity existing between their coats and certain parts of blood, removed some parts of that fluid; and other vessels, called *absorbents*, have re-

stored a portion of other component parts previously secreted from the blood, or received from without. The most obvious change undergone during this circulation is a change in the colour of the blood; this however is restored by second circulation produced by the other cavities of the heart, and is called the *pulmonary process*. In this circulation the blood appears to be indirectly applied to atmospheric air, and hence to acquire a principle which restores its colour. But this process is under the immediate influence of the nervous system, and is discontinued when the action of that system is suspended. After this process has taken place, the blood is restored in its pristine state to the heart. The changes which secretion and absorption effect in the blood are of course deprivation of its elements on the one hand, and reproduction on the other. *Secretion* has been defined "a process which separates from the blood substances which are not found in that fluid." This proposition, as it stands, is so absurd, that we shall take no pains to confute it. Secretion is better explained by supposing that it deprives the blood of certain of its elements, and combines them in a manner different from that in which they previously existed in that fluid; and further, that our chemical analysis is not sufficiently accurate to detect the elements (strictly speaking) of this re-composition.

The number of the various secretions is too great to be here detailed. Some of them are re-absorbed, and some pass from the body by various outlets. Previous to these circumstances, however, their progress is retarded, and their nature changed, by substances called *glands*. The *absorbents* receive these secretions from the whole fundamental or cellular structure; they receive the fluid previously secreted from the blood; they further receive from certain expansions of the fundamental or cellular structure extraneous bodies. These are, the skin, the lining of the pulmonary air-cavities, and the alimentary canal. The absorption from the skin is in general probably small; though, when internal absorption is deficient, cutaneous absorption is no doubt increased. Of the pulmonary cavities the foreign matter absorbed is derived from the air. The nature of this absorbed matter is not precisely known: It is indispensably necessary, however, to the performance of life. But, the greatest portion of extraneous matter is absorbed from the alimentary canal. The whole of this canal is perhaps an absorbing as well as secreting surface; a peculiar portion of it is however much more active than the rest; and this portion is placed so far down, that the foreign bodies received have had time to suffer the changes induced by the secretions poured into the canal, and thereby to have its nutritive part separated from that excrementitious mass. The great extent of this expansion, its numerous secretions, the close relation it holds with the nervous, its intimate relation with the vascular system, and by their means indirectly with every part of the body, render it perhaps the most frequent medium of general disturbance in the human frame; and hence it may with great propriety be considered in the first part of our pathological disquisitions.

The view we have taken of the human frame clearly indicates the impossibility of ever forming a nosology in the old and restricted use of the term; that is, an arrangement of diseases founded on the assumption that an individual part or a separate structure can be disordered without involving the reciprocal action of various other parts. When the physician, therefore, finds fever arranged under the class *Hæmatica*, he is not to suppose that we are disinclined to admit the important part which the nervous system has in this disease; and so on of many other orders, genera, and species.

In this place we must recur to our article *NOSOLOGY*, in order to offer some apology to our readers for neglecting to redeem our promise of using Cullen's system. We trust this promise will be deemed better "honoured in the breach than in the observance," when it is considered, that many errors had been complained of in Cullen's arrangement,

arrangement, even from its first publication; and that, since that period, physiology and pathology have made so much progress, that they may literally be said to be revolutionized. Nor is the system we have adopted to be considered as a crude speculation, unmaturing by experience, or unsanctioned by general assent. It is founded on the clearest and most comprehensive views of the animal economy; and its projector was entirely free from that fatal error of most new system-makers, that of despising the labours of his predecessors in the same path. On the contrary, he has availed himself of all that had been done before him by Sauvages, Pinel, Linnæus, Cullen, Vogel, and many others; and has added the information which long study and experience had furnished him with. A stronger reason than all these, which has induced us to employ Dr. Good's nosology, is its classical and correct nomenclature. Our medical technicology abounds in the most barbarous and absurd appellations; which, so far from having any meaning, or affording any account of the nature or appearance of disease, often serves only to perpetuate some ancient and ridiculous notion. Often derived from the oriental languages, half latinised, they have been long censured by classical physicians; and some alterations have accordingly been made from time to time. But it was reserved for Dr. Good entirely to alter the medical nomenclature, and at once to simplify and adorn a very dry and uninviting subject. We may further remark, that Dr. Good's work is patronised by the heads of the medical profession in England.

We shall now give an outline of the different systems, or classifications, of diseases, which have successively prevailed; and the few remarks we shall make as we go on, will, we think, furnish additional reasons for the course we mean to adopt, of forming the great body of our article upon the system of Dr. Good.

Dr. Good himself very judiciously observes, that no art or science can be acquired, for none can be clearly treated or communicated, without arrangement. All nosological works, therefore, possessing any value, have an arrangement, or method as it is called, of some kind or other.

The simplest arrangement, if it be in any way worthy of the name, is the *alphabetic*, of which, in the present day, we have many copious examples, highly valuable as works of easy reference, though scarcely entitled to rank under the character of systematic arrangement. To this classification belongs the very excellent and important work of Dr. Heberden.—Another modification which has been had recourse to, is that of the *duration of diseases*, as divided into acute and chronic; it is a modification of considerable antiquity, and has descended to us in the works of Aretæus, and of Cælius Aurelianus.—A third modification has consisted in taking the *anatomy* of the animal frame as a ground-work for divisions; and consequently in assorting diseases, as has been done by Jonston, Sennertus, and Morgagni, (and since recommended by Dr. Mead in his Medical Precepts and Cautions,) into those of the head, chest, belly, limbs, and almost every other part.—A fourth invention has fixed upon the supposed *causes* of diseases as a basis of distribution; and to this has been applied the epithet *etiological*, from the Greek term *αιτια*, a cause; it has acquired more popularity than any of the preceding, and was especially embraced by the schools of Boerhaave, Riverius, and Hoffman.—Sometimes a mixed modification has been attempted, as in the nosology of Dr. Macbride, who takes *extent* for his first two general divisions of diseases, as being universal or local; *sex* for his third; and the age of *infancy* for his fourth and last.—And sometimes, and far more generally of late years, the nosological system has been built upon the *distinctive symptoms* of diseases; the peculiar marks by which they identify themselves, and, so to speak, become individualized: and such is the principle adopted by Sauvages, Linnæus, Cullen, and all the most celebrated nosologists of recent times.

This last is, in effect, the only method in any degree worthy of attention; for it is the only one that will generally hold true to itself, or on which we can place any dependence. Of the seat of diseases we often know but very little; of their causes far oftener still less; but there are certain marks or characters in the usual progress of most diseases which uniformly accompany and distinguish them, and to which, therefore, the epithet *pathognomic* has been correctly applied. It is not, indeed, to be contended that these distinctive signs are as constant and determinate as many of the distinctive signs that occur in zoology or botany. So complicated is the animal machinery, so perpetually alterable and altered by habit, climate, idiosyncrasy, and the many accidental circumstances by which life is diversified, that the general rule must admit of a variety of exceptions; and is here, perhaps, rather than any-where else, best established by such exceptions. Yet, after all, every distinct disease, occur where it may, and under what peculiarity of constitution it may, proves so generally true to its own course, and is so generally attended by its own train of symptoms, or "co-incidents," (which is the literal rendering of *symptoms*;) that he who steadily attends to these will not often be greatly deceived; "and if he should be," (says Dr. Good,) he can find no other guide to set him right."

Plater may be regarded as the morning-star that first glimmered in the hemisphere of symptomatology, as Ser-vetus was in that of the circulation of the blood. The light of both was feeble and tremulous; but it twinkled in the midst of darkness, and led on to the brightness of day. His work, entitled *Praxis Medica*, in which he gives an imperfect sketch of a symptomatic plan of nosology, was published in 1602. Sydenham, if he did not avail himself of it, was actuated by the same quickening spirit; for his various treatises and epistles, published for the most part miscellaneously, are a practical comment upon Plater's principle, and seem chiefly to have stirred up the well-stored and comprehensive mind of Sauvages, who was peculiarly attached to Sydenham's opinions and practice, whom he is continually praising, and whom he distinguishes by the name of "*Anglus Hippocrates*," to that full illustration of the symptomatic method which has given form and being to almost every attempt that has since appeared upon the subject.

Sauvages first published the outlines of his plan in 1731, in a duodecimo volume, under the title of "*Nouvelles Classes de Maladies*," after having submitted his intention to the judgment of Boerhaave. This precursory sketch descended no lower than to the division of genera; but, having been encouraged to persevere, he laboured on the species, and introduced them in their proper succession into a new and more extensive edition of his work, published in 1763, in five volumes octavo; and, continuing his exertions yet further in the same vineyard, he put his finishing hand to the great task he had undertaken by preparing a still more complete and final edition, which he did not live to publish, but which was given to the world shortly after his death, in 1768, in two large volumes quarto.

The "*Nosologia Methodica*," for such is the title of M. de Sauvages's work, is, indeed, an Herculean labour. It consists, in its latest and most perfect form, of three distinct arrangements, a symptomatic, an etiological, and an anatomical, so as to accommodate itself to the taste of the old school as well as of the new. The symptomatic, to which the others are professedly subordinate, is by far the most extensively elucidated; and comprises ten classes, (each introduced by an elaborate pathological synopsis,) upwards of forty orders, more than three hundred genera, and an almost innumerable host of species. "Quel nombre prodigieux d'ennemis!" exclaims M. de Ratte, alluding to this vast muster, in his eulogy on the author, delivered before the Royal Society of Sciences in Montpellier; or rather alluding

ding to the somewhat smaller muster of the preceding edition, for the last was not then published. We have yet, however, to add the varieties, which under several species are not few; and to bear in mind, that to every variety, species, and genus, as far as their relative characters will allow, is allotted a definition, list of synonyms, history, diagnosis, prognosis, and mode of cure; with, frequently, an exemplification of cases, and a brief statement of the peculiar opinions of other writers, before we can fairly appreciate the entire mass of matter with which the volumes of M. de Sauvages abound. He seems, indeed, to have been desirous of collecting materials of every kind and quality from every quarter to which a market was open; and of following up every deviation from health into all its possible as well as its actual shades and ramifications, so that no man might have to add a syllable to his work after him. It is not very surprising, therefore, that a work thus constituted and conducted should be considerably too diffuse. This is its leading error; yet it is a venial one, and was by no means destitute of advantage at the time of its commission; for the very amplitude the work evinces rendered it, when first completed, a sort of nosological bazar, to which every one might have recourse who was in pursuit of this new branch of study; and where he might accommodate himself with whatever articles he stood in need of.

To the time of Cullen the general outline or classific arrangement of Sauvages was left without much disturbance; for, although the order of succession was changed, and changed differently in every new attempt, the names, in a few instances diversified, and occasionally some addition made to the number, still the ten Sauvagean classes were substantially retained and adhered to. These classes are as follow:

I. <i>Vitia</i> , Cutaneous Diseases.	VI. <i>Debilitates</i> , Debilities.
II. <i>Febres</i> , Fevers.	VII. <i>Dolores</i> , Local Pains.
III. <i>Phlegmasiæ</i> , Inflammatory Fevers.	VIII. <i>Vesaniæ</i> , Defects of Judgment.
IV. <i>Spasmi</i> , Convulsive Diseases.	IX. <i>Fluxus</i> , Fluxes.
V. <i>Anhelationes</i> , Difficult Respiration.	X. <i>Cachexiæ</i> , General Debility.

The ten classes comprise forty-four orders, three hundred and fifteen genera, and about two thousand five hundred species; being rather more than an average of eight to each genus.

In *Linnaeus*, while the above classes remain substantially the same, their order of succession is varied, the names considerably altered, apparently from a preference of Latin to Greek terms, (as in the use of *MENTALES* for *Vesaniæ*, *MOTORII* for *Spasmi*, and *DEFORMES* for *Cachexiæ*;) and the list of classes is increased to eleven, by advancing the *Exanthematicæ* of Sauvages, which in him occurs as an order of *PHLEGMASIÆ*, to the rank of a distinct class; while the class *VITIA*, with which Sauvages opens, is by *Linnaeus* thrust to the end of the series; which at length will appear as follows:

<i>Exanthematici</i> , Eruptions.	<i>Motorii</i> , Involuntary Motions.
<i>Critici</i> , Common Fevers.	<i>Suppressorii</i> , Obstructions.
<i>Phlogistici</i> , Inflammatory Fevers.	<i>Evacuatorii</i> , Evacuations.
<i>Dolores</i> , Painful Diseases.	<i>Deformes</i> , Changes in the Solids.
<i>Mentales</i> , Loss of Judgment.	<i>Vitia</i> , Changes in the Surface.
<i>Quietules</i> , Loss of Motion.	

The Sauvagean genera are not much interfered with in respect to number. Upon the whole they are rather extended, and amount to 326. The generic names, however, are occasionally altered, and the definitions, which are formed by an almost constant reference from one genus to another, are necessarily drawn up in very different terms, in order to quadrate with such a change.

Some degree of abbreviation is unquestionably hereby produced, which is always desirable when accompanied with perspicuity. But there are few cases in which the author has not preferred the definitions of Sauvages, though frequently too diffuse; for the perpetual aim at brevity in *Linnaeus* leaves him too general where he has not occasion to refer to other diseases, and too perplexed and intricate where he has.

The great object of *Vogel* was to supply what he conceived to be omissions on the part of Sauvages; and hence he gives a muster of not less than 560 genera, being nearly double the number of his great prototype. But, to accomplish this, he has been compelled to elevate to the rank of genera a great multitude of affections which ought only to be contemplated as species, many of which are merely symptomatic of other diseases, and not a few, as *Rifus*, *Fletus*, *Suspirium*, *Clamor*, (some of them, indeed, derived from *Linnaeus*;) which have no claim to be regarded as diseases at all. In his classific arrangement, while he takes Sauvages for his guide, he changes the line of succession as considerably as, though in a different manner from, *Linnaeus*. He degrades the *Exanthematici* of the latter from a classific post, and introduces them, as well as the *Phlegmasiæ* of Sauvages, as mere orders under his class *FEBRES*. He unites into one class the *Anhelationes* and *Debilitates* of Sauvages under the name of *ADYNAMIÆ*; and, having thus reduced the number of the Sauvagean classes to nine, he raises them to eleven by the creation of two new classes, which he calls *HYPERCÆSTHESES*, and *DEFORMITATES*; the former, properly enough, separating Sauvages's "morosities of the stomach" from genuine "mental disorders," and the latter including external deformities of a prominent character. We shall enumerate his classes according to his own arrangement in the year 1764, as follows:

<i>Febres</i> , Fevers.	<i>Cachexiæ</i> , General Debility.
<i>Profluvia</i> , Evacuations.	<i>Paranoiæ</i> , Aberrations of Mind.
<i>Epiçhestes</i> , Suppressions.	<i>Vitia</i> , Superficial Deformities.
<i>Dolores</i> , Pains.	<i>Deformitates</i> , Solid Deformities.
<i>Spasmi</i> , Spasms.	
<i>Adynamia</i> , Debilities.	
<i>Hyperæstheses</i> , Depraved Sensations.	

His definitions are peculiarly concise, but convey too frequently nothing more than general and indistinct ideas: while his new-created terms are peculiarly long and cacophonous, as in the words *Hypopadixæos*, *Dionysiscus*, and *Hyperartertiscus*. For his species and varieties, or rather those he has not elevated to a higher rank, he seems, like *Linnaeus*, to have depended, for the most part, upon Sauvages.

The system of *Sagar* makes less deviation from that of Sauvages than either of the preceding; and may be regarded rather as an enlargement than a re-modification of it. In various respects, indeed, it alters the series of succession, but it retains the name of every class; though it increases the number from ten to thirteen, by advancing the Sauvagean orders of *PLAGÆ* and *EXANTHEMATICÆ* to the rank of classes, and by introducing a new class denominated *SUPPRESSIONES*, designed to correspond with a considerable part, though not the whole, of the *Suppressorii* of *Linnaeus*, as *Linnaeus* intended this last to correspond with a considerable part, though not the whole, of the *Anhelationes* of Sauvages. *Sagar's* Nosology was published in 1776. His classes are—

<i>Vitia</i> , Cutaneous Diseases.	<i>Anhelationes</i> , Defective Respiration.
<i>Plagæ</i> , Wounds.	<i>Debilitates</i> , Debilities.
<i>Cachexiæ</i> , General Disease.	<i>Exanthemata</i> , Eruptions.
<i>Dolores</i> , Pains.	<i>Phlegmasiæ</i> , Inflammations.
<i>Fluxus</i> , Fluxes.	<i>Febres</i> , Fevers.
<i>Suppressiones</i> , Suppressions.	<i>Vesaniæ</i> , Madness.
<i>Spasmi</i> , Spasms.	

Sagar's

Sagar's definitions are mostly taken with little variation from Sauvages; but are rendered intolerably long by confounding Sauvages's generic characters with his generic descriptions, and running the two together: so that, instead of eighteen or twenty words, which is, perhaps, the utmost that ought to be allowed, and more than the Linnæan canons permit in botany, we have sometimes upwards of a hundred, filling an entire page, as in *rubeola*, whose definition, if so it may be called, extends to a hundred and ten lines; and in *aphtha*, which employs a hundred and thirteen. He is less redundant in the number of his genera than Vogel, though he makes a boast of having extended them to 351. It would have been better for him, as Cullen observes, to have boasted of having exercised, in an equal degree, his power of compression. The system of Sagar is rendered more complete than either Vogel's or Linnæus's by being filled up with his species. These, however, are deduced, with occasional alterations, from Sauvages, and exhibit the same verbosity as his genera.

The main object which Cullen proposed to himself, and a more important he could not lay down, was that of brevity and simplicity; and the Sauvagean classification (for Sagar's was not then before the public) offended in both respects. He determined, therefore, upon changing it, and re-casting the system from its commencement. Instead of ten classes, he conceived that four might suffice, formed, as he proposed to form them, of a caliber capacious enough to swallow up all the rest. He moulded his four classes accordingly, and distinguished them by the names of

<i>Pyrexia</i> , Febrile Disorders.	<i>Cachexia</i> , General Disorder.
<i>Neuroses</i> , Disorders of the Nerves.	<i>Locales</i> , Local Diseases.

Influenced throughout the whole of his reform by the same spirit of simplicity and concentration, he reduced the forty-four orders of Sauvages to twenty, and his three hundred and fifteen genera to one hundred and fifty-one. He next carried his pruning hook into the field of species; some he found to be repetitions of the same disease occurring under different genera, and others mere symptoms of other disorders, instead of distinct or idiopathic affections; all which were steadily lopped off; and, in this manner, the reduction in the species bore an equal proportion to that in the genera. The genera and species that remained were next enlisted into his own service, mostly with the respective names assigned them by Sauvages, though the definitions were generally re-composed, and apparently modelled in consonance with the reformer's own practical observations.

Thus completed and fit for use, the new system was first started in the largest medical school of Europe, its author presiding at the head of it. It is not, therefore, surprising, that it should instantly have rushed into popularity, and become a subject of general approbation. Yet it did not stand in need of this adventitious support to introduce it to public favour. Its aim at simplicity, as well in extent as in arrangement, was noble, and bespoke correct views and a comprehensive mind; it promised a desirable facility to the student, and a chaste finish to the architecture of the nosological temple. The author showed evidently that he had laboured his attempt in no ordinary degree; and many of his definitions discovered a mastery that had never before been exemplified: pictures painted to the life, and of proper dimensions.

To this extent of praise Dr. Cullen is fairly entitled. That his system, nevertheless, has faults, and insurmountable ones, it would be absurd to deny; for they meet us at the very outset, and run through the whole of its texture and constitution. Dr. Good notices the errors and inconveniences of the system under the three following heads: 1. Defective arrangement. 2. Want of discrimination between genera and species. 3. Looseness of distinctive character in the last general division, or class,

We shall have occasion to notice only the first and last of these heads.

Of the four classes adopted by Dr. Cullen, the first two, *Pyrexia* and *Neuroses*, have considerable merit, and this merit is exclusively his own. Each term suggests to the mind at once a peculiar group of diseases, of sufficient range for a leading division, and occupies a province possessing a sort of natural outline, or *arrondissement*, as the French chorographers denominate it; in which, if the boundary occasionally fail or lose itself in the adjoining provinces, it is easily supplied by the hand of art. At times, indeed, it seems difficult, under such a system, not to overstep the natural boundary imported by these terms in their common use, and, like the late ruler of France, to give in many parts a broader and an altogether artificial outline by the invasion of adjoining districts; and, from the paucity of his classes, Dr. Cullen has frequently found himself compelled to such a transgression, and has afforded us a palpable instance of it in the very class with which he commences; for the tribe of Hemorrhages, which forms one of its orders, have no direct catenation with any idea suggested by *pyrexia* in the common use of the term; they require coercion to bring them into a state of union; and, what is still worse, Dr. Cullen, with all the force he could employ, has found himself incapable of coercing more than one half of them; and, consequently, has been obliged to leave the other half behind, or rather to banish them for contumacy to the extreme region of his fourth class. So that in his system they exhibit a wide and lamentable divorce, and afford a striking and perpetual memorial of the tyranny which pervades it in spite of its attractive exterior.

Still, however, the first two classes are substantially good; and have in some shape or other been copied by almost every succeeding nosologist. The third class has also a claim to attention, though the term *Cachexia*, by which it is denominated, has been used, and still continues to be used, in senses so extremely different by different writers, that it by no means suggests to the mind a connected group of diseases, with the same readiness as *Pyrexia* or *Neuroses*. As a class, indeed, the division of *Cachexia* occurs in all the preceding writers, with the exception of Linnæus; and so far Dr. Cullen can plead authority; in Linnæus it is reduced to a genus; and in Vogel it is given, with singular imprecision, both as a class and a genus, distinguished by a mere difference of number. Under every writer, however, the term is employed in a various sense; sometimes importing depraved external colour alone; sometimes depraved colour and form; sometimes depraved colour, form, and size; and sometimes, as in Cullen's definition, depraved habit of the whole or a great part of the body, without any notice whatever of the preceding qualities.

But by far the most faulty and incorrigible part of Dr. Cullen's arrangement consists in his last division, or class, *Locales*. It has no scientific relation to the preceding classes, no parallel or apposition with them. To have brought it into any such kind of bearing, the whole of the former should have been denominated conjunctively *Universales*, as has been done by Dr. Macbride. But this would have destroyed the general casting of the arrangement, and have produced a division which was not wanted, and perhaps does not exist. It must be obvious to the slightest observer, that the sole object of this class is to form an appendix to the three preceding, for the purpose of receiving, like the Cryptogamia of the botanical system, such genera as the foregoing classes could not be brought to include. From its name and capacity, however, it is altogether inadequate to its intention; and, while the term stands insulated and without relation to its fellow-terms, its intrinsic and essential idea (that of particular "part or place") creates an insurmountable bar to the reception of a great proportion of the genera which it is directly intended to comprise.

Of these diseases, therefore, Cullen has been obliged to

to give a list at the end of his Synopsis, under the title of "Catalogus Morborum a nobis omisforum, quos omisisse fortassis non oportebat;" and has thought himself called upon to offer an apology in his Prolegomena. "These omissions," says he, "I confess and regret; but various reasons operated to the omission of some diseases. 1. In the first place it must be acknowledged that several utterly escaped our attention. 2. Next, there are others, sufficiently known, for which a fit place cannot be found in our system. 3. And, lastly, there are others whose history among medical writers is so imperfect, that no fit place or character can be assigned to them."

It is the second of these apologies, which we have printed in Italics, that has determined us in the course we have adopted, of rejecting the system altogether. Time and stricter attention may overcome the evils to which both the others relate. But the utter want of fit places for well-known diseases in a nosological system, and this too, in the opinion of the author of the system, is a defect from which no time or labour can ever relieve it.

Since, therefore, the distinguished reputation of Dr. Cullen was incapable of securing to his nosological system the popularity with which it was at first greeted; we need not wonder if a host of learned rivals, few of whom however have humiliated him by their competitions, should, in different parts of Europe, have endeavoured to offer schemes big with the fair promise of realising the noble object he had in view, and free from the defects he has exhibited. These rival attempts may be summed up in a few words: for such is the difficulty of the subject, that none of them have been eminently successful; while the greater part have dropped from the cradle into the grave.

The chief foreign competitors are Selle, Plouquet, and Pinel.—Selle is rather a monogrammist, to borrow a term from the vocabulary of natural history, than a writer on general nosology. His first attempt was confined to the province of fevers alone, and appeared at Halle in 1770, under the title of "Methodi Febrium naturalis Rudimenta;" and it was only to an enlarged edition of this, published at Berlin in 1786, that he subjoined a specimen of his general classes. They are altogether theoretical; and, as he has not accompanied them with their respective genera, it would be superfluous to copy the classification. The cloudiness that hangs over his division of fevers leaves us without regret that he did not complete his entire scheme. It may be sufficient, perhaps, to observe, that in his "Methodical Pyretology," rheumatism, catarrh, and exanthems, are included under a single genus.

The "Outlines" of Plouquet furnish a system that wanders less into theory; but which is far too complicated, and certainly not without its nebulousity. It was published at Tubingen in 1791, in four volumes octavo, under the following title: "Delineatio Systematis Nosologiæ naturæ accommodati." It is singularly distinguished by the author's fondness for long crabbed words. He made a far better present to the public a few years afterwards in his "Initia Bibliotheca Medico-practica, et Chirurgiæ realis; or Hints towards a Medical and Chirurgical Library," extending to seven volumes quarto, in the order of an alphabetical arrangement.

To Pinel, as to Selle, we are indebted for both a monographic and a general attempt. The first is his well-known "Traité Medico-Philosophique sur l'Aliénation Mentale;" the divisions of which are clear, and the remarks of high practical importance. The present writer will be found to have availed himself, as far as possible, of the advantages which this excellent treatise affords, under the article INSANITY, vol. xi. He has not, however, been able to make the same use of M. Pinel's "Philosophical Nosography." It is too refined for popular use, and too indistinct for practical benefit. The classes are as follow: 1. Fevers. 2. Inflammations. 3. Active Hæmorrhages. 4. Neuroses. 5. Lymphatic Diseases. 6. An indeterminate class for the reception of disorders which cannot be received into the preceding classes, or

whose characters yet remain to be ascertained. This last division evinces a woeful want of skill, and is perhaps more reprehensible than the LOCALS of Dr. Cullen. M. Pinel has, moreover, betrayed a singular itch for changing established terms which, in many cases, require no change whatever; and superseding them by others which are neither more true to correct theory, nor more euphonious to a correct ear. As examples we may notice, that inflammatory fever is here denominated *angi-stenic*; bilious fever, *meningo-gastric*; putrid, *adynamic*; malignant, *ataxic*.

In turning our attention to our own country, we shall perceive that the first attempt to improve on Cullen's system was hazarded by Dr. Macbride. It was published as early as 1772, and consists of nothing more than a nosological table, embracing indeed the divisions of genera and species (except in the order of Vesanix, which is left imperfect, from an indetermination in the author's mind upon this subject), but totally void of definitions. It is the opinion of Dr. Good, that this unfinished sketch is well worthy of attention, and has not had sufficient justice rendered to it. Its chief failure consists in the nature of its classes or primary divisions. These consist of four; UNIVERSAL DISEASES, LOCAL, SEXUAL, and INFANTILE. The second, or local class, is evidently derived from Dr. Cullen, though the term is employed in a stricter sense: and the formation of a class of Universal Diseases follows naturally, and indeed necessarily, from the institution of a class of Local. A precise line of distinction, however, can never be drawn by the most delicate hand; and it is obvious to every one, that the employment of other classes after these, whatever be their names, ranges, or attributes, must be absurd; for the terms Universal and Local necessarily include every disease in nature, and leave no other distinctive class to be added. Yet Dr. Macbride appears to have exhibited as nice a skill in the arrangement of his genera and species, as he has want of skill in his primary outline. There is a clearness, a neatness, and simplicity, which, says Dr. Good, "I have endeavoured to avail myself of, wherever the structure of my own system would allow, and which I have often left with regret where it would not." Nothing can more effectually show the good taste and liberality of Dr. Cullen, than his Latin translation and introduction of the first and most extensive class of Macbride's Table into the last edition of his Synopsis, for the purpose of comparison with his own arrangement, as well as with the systems of those to whom he was most indebted.

Another Table of Diseases, distributed under a different systematic arrangement, was published not many years after, by Dr. Crichton; and, like the preceding, unaccompanied with definitions of any kind. Its classes are eight, consisting of Cullen's four, with the addition of four others, for the purpose of accommodating those genera which are chiefly under a state of restraint in the Cullenian method; and to which he has given the names of HÆMORRHAGIÆ, FLUXUS, INTUMESCENTIÆ, and EPISCHESES. This assuredly offers some improvement; but the retained class LOCALS is subject to the common objections against it; and in the subdivisions of this class Dr. Crichton has no reason to boast of being more successful than his predecessors. He seems sensible, indeed, of the difficulty, and appears to shrink from it; for in the fourth, fifth, and sixth, orders of the local class, entitled Prolapsus, Luxatio, and Tumores, he has withheld his species; and in the three ensuing orders, entitled Vultus, Ulcus, and Fractura, he has equally withheld his genera. For the most part his generic and specific distinctions exhibit far less precision than those of Dr. Macbride, whilst he has most unaccountably restored the symptomatic species of diseases which Cullen laboured so meritoriously to suppress. It is somewhat singular, therefore, that Dr. Crichton should have best succeeded where Dr. Macbride principally failed, and chiefly failed where Macbride has been most successful.

Dr. Darwin's system of nosology, published indeed some years before Dr. Crichton's, is founded, not on symptoms, but on theory. The author of Zoonomia was a man of great genius, daring imagination, and extensive reading. See p. 43. Unfortunately for him, he was perpetually stung with a desire of distinguishing himself by seeing things, weighing things, and combining them, in a manner different from every one else. All his works give proof of this; and show evidently that he would at any time rather think wrong with himself than think right with other people. His nosological system is founded upon his physiological principles; which, stripped of extraneous matter, may be told in few words, so far as they are applicable to the present subject. The brain, as a collective organ, is the fountain of life and sensation, and sends forth fibres of different kinds and for different purposes; which are excited, and communicate perceptions to the organ whence they originate, by four different classes of stimuli, those of simple irritation, of sensation, of volition, and of association; every part of the animal frame having a greater or less degree of influence upon every other part, and operating this influence by the medium of sympathy; in consequence of which, Dr. Darwin was desirous that his own theory should take the name of the sympathetic. "Every idea," says he, "is a contraction, or motion, or configuration of the fibres which constitute the immediate organ of sense;" and hence it seems difficult for the friends of Dr. Darwin to repel the charge, that ideas, under this explanation, must be material substances. Health he contemplated as consisting in the natural correspondence, and degree of correspondence, of the various organs of the body to their respective stimuli, and disease as an effect produced by any, even the slightest, deviation from such correspondence in any part. Hence every such effect, in his opinion, constituted a disease; and what is commonly so denominated, and which consists of a combination of symptoms, as a fever or a colic, he regarded as a group or bundle of diseases; a sort of Pandora's box, where they muster their secret or collective strength, and whence they issue simultaneously. In forming his nosological arrangement, he made these effects, and the parts or organs in which they manifest themselves, constitute his genera and species; while he derived his classes and orders from their proximate (or rather what upon his theory are supposed to be their proximate) causes, and the peculiar characters which these causes exhibit; the number of the classes being four, derived as may be easily conjectured from the four sources of stimulation just referred to. "I have taken," says Dr. Darwin, "the proximate cause for the classic character. The characters of the orders are taken from the excess, or deficiency, or retrograde action, or other properties, of the proximate cause. The genus is generally derived from the proximate effect. And the species generally from the locality of the disease in the system."

By proximate cause, however, Dr. Darwin does not mean what is generally understood by this phrase, namely, the most striking or characteristic symptom of a disease; but what should seem to be the proximate cause upon his own theory, and which in every instance must be a different and often a directly opposite thing. Thus in nictitation, the proximate cause, in the common sense of the term, is a "rapid and vibrating motion of the eye-lid," which ought, therefore, to constitute the character of the disorder. In the vocabulary of Dr. Darwin, however, this, instead of being the proximate cause, is the proximate effect; while his proximate cause is "increased irritation," which is the remote cause, as the phrase is commonly explained. We are not now inquiring which is the more correct use of the terms cause and effect, but only pointing out the variance and the confusion that hence necessarily ensue. The perplexity hereby produced must have been an effectual bar, had there been no other, to Dr. Darwin's system ever becoming popular. Unfortunately there are many others, and of as formidable an aspect. The en-

tire basis is theoretical; in several parts visionary; the whole may, therefore, prove hereafter to be unfounded; a considerable portion of it evidently is unfounded at present. But the direct death-warrant of the system consists in his making every single proximate effect (in common language proximate cause, or symptom) a distinct disease; for, as the same proximate effect, or symptom, may be produced by several, or by each, of what Darwin calls proximate causes, and which constitute his classes, it follows that the very same species or specific disease must in such cases belong equally to some order or other of several or of all the classes of his system. And such, to the student's embarrassment and surprize, he will find upon examination to be the real fact. Thus while Variola (small-pox) is arranged under cl. ii. ord. 1. gen. iii. Eruptio Variolæ (small-pox eruption) occurs under cl. iv. ord. 1. gen. ii. So Hydrophobia appears first in i. 3. i. and afterwards in iii. 1. 1. Diabetes in i. 3. ii. and again in iv. 3. 1. Palpitation of the heart in i. 2. i. and again in i. 3. iii. being twice in the same class: and so of many others.

Such perplexity sets all the ordinary laws of method at defiance; yet it is easily accounted for from the nature of the primary divisions. While, to make the system still more defective and incapable of practical use, its author has given us neither his specific nor his generic definitions, excepting, indeed, occasionally; confining himself entirely to his Latin and English names; and sending us for their descriptions to "the Nosologia Methodica of Sauvages, and the Synopsis Nosologiae of Dr. Cullen, and the authors to which they refer." But such an appeal can be of no possible service: the diseases in Darwin's system do not run parallel with those referred to, and the descriptions will scarcely in any instance apply.

In the very excellent Medical Dictionary of Dr. Parr, which has now been about twelve years before the public, the reader will find, under the article NOSOLOGY, a systematic arrangement of diseases which ought by no means to pass without notice.

In laying down the outline of his system, Dr. Parr had his eye chiefly directed to the nosological method of Selle, and the botanical method of Jussieu. It follows, therefore, that his primary division would consist not of classes, but of what he intended to be natural orders, or families. These orders are twelve, whose names are taken from the classes or orders of Sauvages or Cullen, with the exception of one, SUPPRESSORII, which is borrowed from Linnaeus.

Here again, therefore, we have a great and noble aim, whatever be the success of its accomplishment. But, as a natural system, even in botany, is to the present hour, and perhaps always will be, a theoretical rather than a practical idea, there seems very little expectation that it can ever be realized in medicine. On the part, therefore, of Dr. Parr, the attempt was a bold one; and his arrangement will show that, if he has not been altogether successful, he has exhibited a very considerable degree of ingenuity. This arrangement is as follows:

Pyrexia, Fevers.	Adynamia, Debilities.
Phlegmusa, Inflammations.	Paranoia, Alienations.
Eruptiones, Eruptions.	Cachexia, General Disorder.
Profluvia, Fluxes.	Intumescencia, Tumours.
Suppressoria, Suppressions.	Ectopia, Protrusions.
Spasmi, Spasms.	Plaga, Wounds.

Between most of these we can trace, in the series of their descent, a verbal connexion; and between several of them a connexion of a more substantial kind. It holds nominally in the first three orders, but seems to slip from us in the three that follow; and is occasionally recovered in the remaining. Yet, when we examine the genera and species of the respective orders, we shall find the connexion is too commonly nothing more than verbal. PHLEGMASIAE has a manifest relation to PYREXIAE; but in Cæliaca, Leucorrhœa, Leucorrhœis, (discharge of white mucus

mucus from the anus,) which are diseases of the former order, the connexion is entirely lost: nor will it, perhaps, meet with general approbation that these, together with Gonorrhœa (used in the vulgar sense of the term), Cystirrhœa, and Phthisis, should be united with Coryza and Dyentery, under one common genus, to which is given the name of *Catarrhus*. This, however, is a genus upon which Dr. Parr peculiarly prided himself, and upon which he unquestionably bestowed very great pains. In like manner the order ERUPTIONES seems at first to claim a near affinity with PHLEGMASIÆ; and in the genus Exanthema it does so substantially, for here we can trace distinctly something of that febrile, or, to speak more correctly, pyretic diathesis, which unites these two orders with the order PYREXIÆ. But in the mere cutaneous eruptions, here collected into one genus, named *Efflorescentia*, the line of union becomes so fine and filmy as to be altogether invisible. Were we to pursue this prying indagation, we should soon arrive at breaks far wider and more obvious. It would perhaps be difficult to find four diseases more discrepant from each other than Dyspepsia, Amentia, Amaurosis, and Agenesia. They seem to have no one common property with each other. Dr. Parr, however, has contrived to make them all species of a single genus, to which he has given the name of *Anepithymia*, and which he has defined, "a diminution of power in the different functions;" a character sufficiently sweeping to cover at least half the diseases that man inherits; for excess and diminution of power may easily be made to embrace the whole; and are made to do so under the Brunonian theory. Yet, notwithstanding this licentious generalization, and aim at a natural arrangement, the diseases of the external senses, which seem to have a pretty close proximity with each other, are partly scattered at considerable distances over the entire system, and partly, as in the instances of Caligo, Dysopia, Paracusis, Anosmia, Ageusia, and Anæsthesia, are in the unfortunate situation of Dr. Cullen's "Catalogus morborum à nobis omisorum;" and, from forgetfulness or some other cause, have no place allotted them in any section of the system.

There is, nevertheless, much in Dr. Parr's system that is highly meritorious. The distinctions of the different divisions are scientifically laid down; and, except that the genera are occasionally too extensive, accurately maintained. Dr. Parr gives the following short explanation of his own system: "In this arrangement there is a concealed methodus, which, as it is not an object of importance, we need not explain farther than by adding, that feverish complaints, increased and diminished evacuations—increased, diminished, and irregular, nervous excitement—diseased fluids, appearing either in increased or diminished bulk—the displacements and solutions of continuity—follow in order."

Dr. Young's "Introduction to Medical Literature, including a System of Practical Nosology," though limited to a single octavo, ranges through an entire course of medical education, anatomical, pathological, therapeutical, and chemical, as well as nosological; whilst in the last department it is drawn up with a somewhat different view, and is more strictly limited to the pale of the medical profession. The arrangement of Dr. Young, while essentially distinct from that of Dr. Good, will be found perhaps to make the nearest approach to it of any that has hitherto appeared. In wanting the division of orders to two of its classes, it is scientifically defective; but its systematic boundaries are as clearly seen, and as precisely maintained, as those of Dr. Parr. Yet its chief merit, perhaps, consists in offering to the student a masterly guidance, through the whole of his professional tuition, to the best authorities and sources of information; in this respect answering the purpose of Plouquet's seven quarto volumes, with a great saving of expense, a prodigious saving of time, and by a far nearer and pleasanter pathway.

A glance has already been given at a few limited noso-

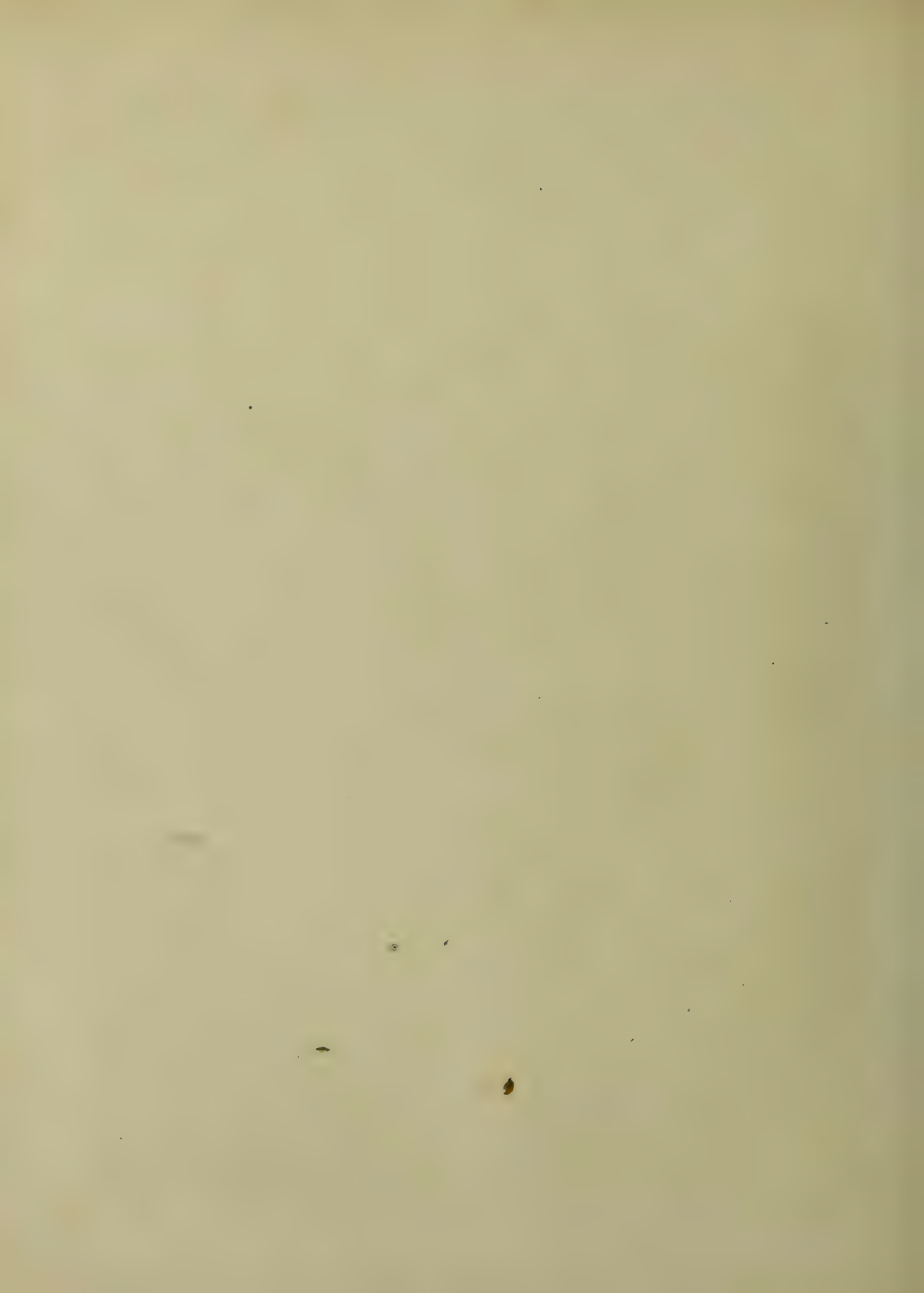
logical arrangements, by writers who have confined their attention to a single family or group of diseases, detached for this purpose from the rest; and to this description of works Dr. Good has applied the name of *monograms*. To the names of Selle, Pinel, and Crichton, it is necessary to add, under this view of the subject, those of Plenck, Willan, Bateman, Abernethy, and Granville.

Dr. Plenck, of Baden, is the author of two distinct treatises of this kind; the one a methodical arrangement of the "Diseases of the Eyes;" and the other of "Cutaneous Diseases." In the former he follows the order of anatomy in the distribution of his primary divisions, beginning with the eye-brows, and descending from without inwards till he closes with the retina. In the latter, which consists of classes, genera, and species, without the interposition of orders, he employs a looser line of succession; though the general idea seems to be that of advancing from the slighter to the more prominent elevations of the skin, commencing with MACULÆ, and proceeding to EXCRESCENTIÆ; the remaining classes consisting of CUTANEOUS ULCERS, WOUNDS and INSECTS, DISEASES OF THE NAILS and of the HAIR. He is a more indutrious than discriminative writer, as the reader will perhaps readily concede, when informed that he has arranged, defined, and followed, through their progress and mode of treatment, a hundred and nineteen genera, comprising very nearly six hundred species, or distinct diseases of the eyes, the genus amaurosis alone extending to twenty species; and one hundred and fifteen genera, including nearly six hundred species, or distinct diseases of the skin.

Yet compression, and a more scientific arrangement, would make either of Dr. Plenck's attempts a valuable work; and Dr. Willan has the merit of having performed this friendly office to the latter of the two, in his book on "Cutaneous Diseases;" and at the same time of having added so much valuable matter of his own, as to entitle it to the claim of being strictly an original performance. The distinctive characters of papula, pustule, vesicle, bleb (bulla), scale, and crust, are well given and maintained by the former; but the latter has expressed them more neatly, and has added many distinctions which the former does not afford; whilst he has drawn his literary and practical history, and treatment of the diseases discussed, from very different sources; and, as far as might be, from his own personal observations. That Dr. Willan did not live to finish this valuable work must be regretted by every one who has the welfare of medicine at heart; but the able and judicious manner in which it has been brought to a close by Dr. Bateman has served in no small degree to abate the general disappointment. Had Dr. Willan lived to complete the direct object of his pursuit, and then extended his views to the whole circle of diseases, he must have greatly modified his first and more restricted system before he could have incorporated it in the larger plan. As it is, indeed, it stands in need of no small degree of modification to clothe it with all the perfection it deserves; for several of his orders would make better genera; almost all his genera are decided species, while his species are seldom more than varieties, and are in many cases so denominated by himself. In this respect he might have taken a good lesson from Dr. Young, Dr. Parr, or Dr. Macbride; as he might also from the two former in giving the essential character of each disease antecedently to the admirable description with which it is followed up.

The name of Mr. Abernethy is here mentioned in reference to his methodical "Classification of Tumours." This classification is strictly symptomatic; the characters being derived, as they ought ever to be, as much as possible, from sensible phenomena.

The last monogram we have to notice is a "Classification of the Diseases of Children," by Dr. Granville, principal physician to the Royal Infirmary for Sick Children; and detailed by him in the London Medical Journal for December



ember last (1820), of which work he is at present the editor.

Dr. G. in his address to the then editor, observes, "You must have been struck, in common with every other practitioner of this or any other country, with the singular circumstance of no regular classification of infantile diseases having ever been proposed by the several eminent authors who have written on that particular branch of medicine; and you will probably agree with me, that no-where is the necessity of such a classification likely to be more felt than in an extensive institution directed solely to the alleviation of those diseases, where daily and numerous occasions must occur for its use. In the Infirmary to which I have had the honour of being appointed principal medical officer, it would scarcely have been possible for the physicians and surgeons belonging to it to have preserved any degree of uniformity in the medical records of that institution, had we relied on the usual routine only, of entering the names of patients without any very precise and uniform designation of their complaints. It became, therefore, necessary to establish something like a Synopsis, by the help of which, as if with the use of a common language, we might become intelligible, not only to each other but also to the profession in general; the members of which may hereafter wish to refer, for many useful subjects of information, to the registers of the Royal Infirmary."

"How far the present attempt to form such a Synopsis may succeed in removing the difficulties which, like those experienced in general practice before any nosological arrangement of diseases had been established, must be felt in the consideration of infantile complaints, I leave my colleagues and the public to decide. I have no pretensions on the subject, and I give my present speculation as a mere attempt; happy if it serve to stimulate more competent persons to fill up the chasm which has hitherto existed in nosological science. The names of Heberden, Rosen, Capuron, Burns, and Underwood, not to mention several others, must be familiar to those who have paid particular attention to the diseases of children. The descriptive observations and practical remarks of these eminent men leave scarcely any thing to be wished for; yet it must be admitted that, had those descriptions and remarks followed some specific arrangement, the facilities for their study and their retention would have been greater than they now are."

"The plan of the present classification is as follows: I have, in the first place, considered all deviations from healthy action or healthy structure in children, as having either begun with their fetal life and formation, or developed themselves at the moment, and in consequence, of parturition. These, therefore, form a first great division, very distinct from that of any other complaint which may afflict a child subsequently to its birth and up to the adult age. To this first great division, I have applied the denomination of *Morbi Congeniti*, and I have necessarily been obliged to make two classes of it; in the former of which I have placed all diseases or deviations from healthy structure previous to, and consequently independent of, parturition; while in the second those congenital diseases have been arranged which are connected with, or dependent on, parturition. The diseases embraced by the first of these two classes of the first great division are by far more numerous than those of the second class; and, in order to facilitate their recollection, they have been subdivided into ten orders, each order containing an unequal number of genera, in all forty-five. Two orders only are contained in the second class: 1, topical; 2, universal; each being subdivided into five genera."

"Having thus disposed of all the diseases which, from their being coeval with the patient, form a well-defined and distinct division, it remained for me to arrange all those deviations from health which are known to occur subsequently to birth and as late as the adult age, whether peculiar to the period of time that lies between these two

epochs, or likely to affect children in common with persons more advanced in years. These two considerations gave rise to a second great division, which I have designated by the name of *Morbi Subsequentes*, as quite distinct from those which formed the subject of the preceding remarks." This second great section is divided into four classes, and each class into two orders; the genera are 96, which added to 55 in the first grand division, make a sum of 151 genera of diseases with which children are afflicted. How numerous the particular species may be we are left to conjecture, as the author says, "I have not extended my consideration to either species or varieties, as this would have carried me too far."

This Synopsis has been printed on a card, for the convenience of students. Omitting the names of the genera, the classification will appear as follows:

I. MORBI CONGENITI.

Class I. ATOCICA. Congenital Diseases independent of Parturition.

- Order 1. *Atresis*. Natural openings imperforate.
2. *Collisis*. Unnatural adhesions.
3. *Diazeuxis*. Unnatural separations.
4. *Elatosis*. Defective organization.
5. *Perisseuzis*. Superfluous organization.
6. *Hydrops*. Unnatural accumulation of fluids.
7. *Ectopia*. Displacements.
8. *Assymetria*. Anti-symmetrical conformation.
9. *Parasthesis*. Defective action of senses.
10. *Metrocclis*. Marks.

Class II. TOCICA. Congenital Diseases dependent on Parturition.

- Order 1. *Topici*. Partial.
2. *Universales*. General.

II. MORBI SUBSEQUENTES.

Class I. ZOTICA. Morbid Alterations of the preservative Functions.

- Order 1. *Pneumatici*. Affecting respiration.
2. *Hematici*. Affecting circulation.

Class II. AUXITICA. Morbid Alterations of the augmentive Functions.

- Order 1. *Cœliaci*. Affecting digestion.
2. *Lymphatici*. Affecting absorption.

Class III. APOCRITICA. Morbid alterations in the segregating Functions.

- Order 1. *Eccritici*. Affecting secretion and excretion.
2. *Dermatici*. Affecting exhalation.

Class IV. ÆSTHETICA. Morbid Alterations of the sensitive Functions.

- Order 1. *Neurotici*. Affecting sensation.
2. *Myotici*. Affecting voluntary motion.

We hail the establishment of an Infirmary for Sick Children, as likely to form a new era in favour of the rising generation; for we cannot doubt that it will have its effect in improving a branch of medical practice, of which it is not too much to say, that it has hitherto been unaccountably neglected. "In no department of our profession (says Dr. Reid) does the practice of it appear so cruelly absurd as in the mismanagement of infants. I once ventured to observe, that, of the cases of mortality in the earlier months of our existence, no small proportion consists of those who have sunk under the oppression of pharmaceutical filth. More infantile subjects in this metropolis are perhaps diurnally destroyed by the mortar and pestle, than, in the ancient Bethlehem, fell victims in one day to the Herodian massacre. I plead guilty to the charge of rashness and hyperbole, which were brought against this remark when first published; but I wish that the years of experience, which have since intervened, had convinced me that the remark was altogether destitute of foundation. When we contemplate a church-yard, the earth of which is composed in great measure of the bodies of infants, it is natural for us to fancy, but surely it is

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not reasonable for us to believe, that those beings were born for no other purpose than to die; or that it is within the design of nature that the pangs of production on the part of the mother should, on that of her offspring, be almost immediately succeeded by the struggle of dissolution. Fault must exist somewhere: it cannot be in the providence of God; it must therefore attach to the improvidence and indiscretion of man. Consequences as fatal originate from ignorance as from crime. Infanticide, when perpetrated under the impulse of maternal desperation, or in the agony of anticipated disgrace, is a subject of astonishment and horror; but, if a helpless victim be drugged to death, or poisoned by the forced ingurgitation of nauseous and essentially-noxious potions, we lament the result merely, without thinking about the means which inevitably led to its occurrence. Conscience feels little concern in cases of medicinal murder. The too-ordinary habit of jesting upon these subjects in convivial or familiar conversation, has an unhappy tendency to harden the heart, and inclines us to regard, with an inhuman and indecorous levity, those dark and horrible catastrophes which too frequently arise from professional ignorance or mistake." *Essays on Hypochondriasis*; 2d edit. 1821.

Some other systems of inferior importance have appeared in different countries, especially in Germany. We pass over them, however; and, dismissing this uninteresting branch of our science, retrace our steps to consider the most important of the modes in which disease, or a change from the phenomena of healthy action, may arise.

An inquiry into the abstract principles of disease is a subject of acknowledged difficulty. The very definition of the word *disease* involves more trouble than might at first seem apparent, and is indeed a matter about which there exists much difference of opinion. We content ourselves, therefore, with the use of the laconic definition, that disease is *the absence of health*, acknowledging, however, that this description involves the definition of what health is. But the latter question is answered by Physiology, a science with which the pathologist is supposed to be previously acquainted.

We do not propose to enter into a consideration of the minute and remote causes of disease. It would not perhaps be difficult to show, that the first changes which take place in the various structures must operate by their relation with the vital properties. This, of course, applies principally to those causes which produce what is called the *predisposition* to disease. A *predisposing cause* is that which renders the body liable to be attacked by disease, or to be acted upon by an exciting cause; for the operation of an exciting cause alone is generally not sufficient to produce disease. Thus several persons may be exposed at the same time to the same external agents, e.g. to cold and moisture: in some, these agents will excite disease; on others they will act with impunity. In the former persons, some circumstances must have existed which rendered them liable to receive those morbid impressions; in the latter, no such predisposition was present. Again, some of those, whom the exciting causes affected, may suffer one kind of disease, and others a different one; thus, one individual may be afflicted with rheumatism, another with catarrh, a third with dysentery, and so on; facts implying the existence of some peculiar condition of the body, or of the organs respectively attacked, which is justly deemed a *predisposing cause* of the particular malady which may have occurred. In some instances, the *predisposition* is obvious and well understood: thus one attack of rheumatism, pleurisy, or any inflammatory disorder, generally renders the body more liable to suffer a second: a peculiar formation of the chest, combined with a fair and delicate skin, with dark eyes, lively spirits, &c. implies a tendency to be affected with pulmonary consumption: and a plethoric habit, large head, short neck, very florid complexion, &c. threatens the accession of apoplexy. In such circumstances the

kinds of exciting causes, which ought to be peculiarly avoided, are manifest; and by a careful attention to this suggestion, the diseases, with which the individuals are menaced, may be often avoided.

The *exciting* is the next mode of remote causation, and is of course an agent which operates for the most part by the relation it holds with the *predisposing cause*. The exciting causes of disease have given rise to many and various hypotheses. Hippocrates supposed that diet and air were the externals whence disease was principally derived; and certainly, as these are the *pabula vitæ*, as they constitute the *repair* necessary to our existence, an unusual state of them must produce a corresponding change in the sensations and functions of our bodies. We can only therefore add to these exciting causes, *mental impressions* and excessive action, or the reverse, of certain organs. But there are some exciting causes so very generally affecting mankind as to lead us to suppose that they operate independently of any state of predisposition; as the poison of syphilis, small-pox, rabies, &c. Though even these diseases do not seem uninfluenced by the state of constitution, as they exist in various degrees of intensity in different individuals.

As these exciting causes of disease can come only from without, they must operate in the first instance through the medium of those parts by which man is related with the external world. These are the organs of sense, and those unions of the three fundamental structures which have been denominated the *alimentary canal*, the *pulmonary cavity*, and the *cutaneous expansion*. As these three structures are all assimilation or absorption, and at the same time abundantly supplied with nerves, they must communicate morbid impressions, either, 1st, by assimilating substances of an improper nature; of which we have frequent instances in the reception of poisons, &c. into the blood, in the transmission of the miasmata, or the contagion of fevers, &c. or 2dly, by transmitting nervous impressions to the brain, and inducing disorder of that organ, and the nervous system generally. Each of these modes may, according as predisposing causes are in existence, produce local disease, or disturbance of general functions.

But it is very obvious, that, however firmly these notions may be established, we advance but a very little way in attaining a knowledge of exciting causes. For, so various are the modes by which externals may operate, so many inscrutable and various properties belong to food, and still more to air, and so numerous must be the derangements produced by nervous excitation, that the attempt to trace the laws of these causes will for ever remain inefficient.

The operation of the senses can of course only induce disorder of the brain and nervous system by exhausting its energies; whether that exhaustion be produced by excitement of the brain generally, or of its particular parts; or, on the other hand, by the depression of them.

To illustrate these principles, we will suppose a patient afflicted with a state of the liver *predisposed* to disease. Is mental emotion by excessive grief, that is to say, is the production and transmission of nervous energy, disturbed by the inordinate action of the brain? the process of secretion in the liver will be obstructed; and thus induce simple local plethora, perhaps the simplest form of disease. On the other hand, disease may occur in the *predisposed* liver by the immediate application of an improper material received into the blood, and acting as an unusual stimulus to the contractile power of the capillary vessels of the liver; hence, in the same way, impeding secretion, &c.

Of the application, however, of these doctrines, we shall have occasion to give very frequent illustration in the pathology of particular diseases. We have now to consider the nature of what is called the *proximate cause* of disease. The precise meaning attached to this term is, that it designates an *action* of the body, in contradistinction to states of impressions which constitute remote causes.

causes. The proximate causes, therefore, of diseases, must be almost as numerous as the diseases themselves; and hence they will form part of the pathological discussion we shall enter into with regard to each different malady. In this place, however, it will be proper to offer some remarks concerning the local origin of disease. That disease may, and indeed generally does, arise from loss of the balance of action between one part and the system at large, seems indisputably proved. How far, however, this part may proceed in diseased action without influencing the general health, is another and an important consideration. Having lately met with some remarks on this head by Mr. Pring, we have transcribed them from his "Indications," on account of the close reasoning with which he has illustrated the subject.

"There are but few (perhaps not any) examples of disease which is confined wholly to one part. There are many instances of disease of one part, in which the organic system elsewhere does not perceptibly suffer: but these are attended with pain or disordered motion, which is sufficient to prove an extension of the diseased state. In the organic system, however, a person may have an ulcer in the leg, or a tumour upon the shoulder, or an herpetic disease upon some spot of the skin, or a stricture of the urethra, &c. without any sensible derangement of the same system elsewhere. But even in these instances we cannot prove that the change is entirely local, unless it may be shown, 1st, that the natural condition of the seat is not a dependent one, by which disorder might originate in another sphere; and, 2d, supposing the disease to originate in its apparent seat, that no other is so connected with it as to participate in its modifications. But, if it is possible that any part should possess only an assimilating life, that no other part is dependent upon it, and that the condition of disease does not open any new or preternatural relation, then it is possible that the assimilating life of such part may become exclusively diseased.

"It happens however in most instances of disease, that this state prevails in more than one seat. In such instances these two alternatives are to be discriminated: 1st, Whether the diseases occupying different seats are not independent of each other? 2d, Whether the primary produces the secondary disease?

"If in the course of a fever an abscess should form in one axilla, and a week afterwards an abscess should form in one groin; if the eruption of the small-pox should appear first in the face, and then be extended over the whole body; if a tubercle should form in the liver, and a month afterwards a vomica should burst in the lungs; if a venereal ulcer should form in the throat, and six weeks afterwards a node on the tibia; we should scarcely in these (and there are many such) cases assert that the disease occupying the first seat was the cause of the disease occupying the second.

"But, if one half of the body should be paralyzed by the rupture of a blood-vessel of the brain; if vomiting should succeed to a blow on the head; if disordered respiration should succeed to the operation of a cause of pressure on the brain; if atrophy should succeed to disease of the mesenteric glands; if the secretion of a gland should be suspended during an inflammation of it; if convulsions should succeed the irritation of a nerve; if paralysis of the sphincter of the bladder should succeed to an injury of the spine, &c.—we have no hesitation in these cases in affirming that the primary is the cause of the secondary affection, because we know that the healthy state of the properties engaged in the secondary, acknowledge the regular dependent relation with those engaged in the primary seat of affection.

"Again, if vomiting should succeed the formation (or introduction) of a calculus in the gall-duct, or to the passing of a calculus along the ureter; or if a pain in the shoulder should succeed an inflammation set up in the liver; or if hernia humoralis should succeed to an affection of the urethra, perhaps produced by an injection;

or if tetanus should follow a punctured or lacerated wound; or if pain in the breasts should succeed conception, &c.—we have in these cases no hesitation in saying, that the secondary is produced by the primary change.

"These are examples of the classes of related disease. Disease of one part, or one state of disease, might produce another; 1st, by disturbing an habitual dependence; and, 2d, by the influence of an occasional cause. The first is illustrated above; as if an injury of the brain should paralyze nerves whose functions are dependent upon the brain, or as if respiration should become laborious, or perhaps cease, by the operation of any cause of pressure upon the brain, &c. The second is illustrated in those other examples, in which a relation is exhibited under circumstances of disease, which was not manifested as one of dependence for a natural office, during health.

"The affection of a dependent seat in consequence of a disordered state of the seat from whence its functional properties are derived, is by no means a regular occurrence. We know that there might be a violent pain in the head, a throbbing of all its vessels, as if the whole brain was violently disordered, and yet the function of respiration, which depends upon the brain, may be but little or not at all interrupted; at the same time, a slight pressure upon the brain shall impair or prevent these dependent functions. The reason is, that properties are not indifferently related with any cause of disorder; but their relations are precise; as, properties of the brain animate the organs of respiration, these properties related with the agency of pressure, not related with causes merely producing pain or even inflammation; the dependent function, impaired by the former, because the former is related with the properties engaged in the dependence; not related with the latter, because, although they produce a certain affection of the seat of the properties which animate the respiratory organs, they do not produce a change in the nature and relation of these properties, to expect which would be like expecting that paralysis of nerves should not occur from pressure upon a part of the brain, because it still retains some properties of life.

"It has been stated that related disease happens in two ways, which may here be repeated: 1st, by disturbing an habitual relation of the regular dependent kind; 2d, by a new relation which is opened between parts not before connected by intercourse of function, in consequence of a new condition which one of them has assumed: it has been stated (and examples given) that disease might occupy a succession of seats without the existence of any causative relation between them. It is necessary, before we proceed any further, to inquire after the method of distinguishing between diseases which, though occurring in a series, are independent of each other, and those in which the subsequent is produced by the preceding disease.

"In making this distinction we are liable to frequent error: the only grounds of the distinction, however, are as follow. Mere succession, as has before been insisted, can never prove causation; but it indicates causation, from the analogy of succession to those palpable instances of causation in which the dependence of the effect upon the assigned cause may be proved by the result of analysis and of synthesis; of taking away (or withholding), and of combining, the causes. Succession then, upon this ground of analogy, which has been more fully explained, may indicate causation; and yet we do not suffer every instance of succession to suggest ever so faintly an inference of causation.

"The succession of an effect to its true cause is *invariable*: from analogy in this respect, we infer positively the operation of a cause in all instances of *invariable succession*; thus, day and night *invariably* succeed the presence or absence of the sun. But we presume still further upon this analogy; we infer the operation of a cause, when the succession of the same consequence to the same antecedent is *frequent*, but not *invariable*; thus, an ounce and a half

half of laudanum taken into the stomach will commonly, but not always, produce death; we have no hesitation in assigning the laudanum as the *cause* of death, in those instances in which death takes place, notwithstanding there are other instances where the obvious circumstances are alike, in which it is not followed by death. *Invariable succession* bears so strong an analogy to causation, that we scarcely suspect the possibility of our being deceived in an inference grounded upon it; and yet we do sometimes make a false inference founded upon past invariable succession, as is proved by additional, or subsequent, experience. *Frequent* succession of like to like, bears an analogy to the *invariable*, and upon this analogy we found an inference of causation: the point of analogy is between the *frequent* and the *invariable*, consequently the analogy must be established or presumed upon, in proportion to our experience of the frequency of the succession of like consequences to like antecedents. These grounds of the inference of a cause, as is just stated, are imperfect, and must admit frequent error; for we cannot define what number of successions of like consequences to like antecedents, are an adequate number to prove causation. Hence then, although we infer causation from succession, we are obliged to confess that we can do this only in certain cases; before we can admit the truth of an inference of causation, we must have had an experience of a sufficient frequency of a like succession. Different men will hold different opinions with regard to what constitutes a *sufficient frequency*; and the want of a possible definition in this matter admits a great diversity of opinion upon important points, and gives room for the distinction of close and loose reasoners. But, when once we have had experience of what is considered a sufficient frequency of like succession, we then infer some difference (where it is not perceptible) in cases in which the same consequences do not succeed the same antecedents. In such instances, we balance an account between like and dissimilar succession; and we *assign a cause* only where the *frequency* of the same succession (approaching to the *invariable*) exceeds that of the exceptions. Thus, (not to quit our subject,) if the exhibition of a particular medicine should be followed by recovery from phthisis pulmonalis in one instance, this succession would, where men are disposed to catch at straws, indicate a possible causation; if the same event succeeded to its exhibition in ten instances, its credit would be better supported; if in a hundred, better still. If it should succeed in five and fail in five, we should hesitate perhaps to assign it as the cause of recovery in the first five; if afterwards it should fail in fifty cases, we should say that in the five in which it was followed by recovery the cure was owing to *other causes*. If it should succeed in a hundred and fail in fifty, we should then perhaps judge the hundred to amount to an adequate number to establish the relation of the medicine, as a *cause* of recovery; while we should explain its failure in the other fifty, by supposing some diversity of circumstances, by which its relation as a cause was modified, to have prevailed. The conclusion amounts to this: We infer that a secondary is produced by a primary disease, upon an experience of a frequent succession of the one to the other, provided at the same time that our experience furnishes us with no stronger analogies to sensible causation, by which we are rather justified in considering them distinct." Pring, ch. iv.

This succession of diseased actions in many diseases produces a curative effect; and the contemplation of this fact is what has caused so many errors to be committed in practice in regard to the operation of *nature*. Seeing that the constitutional disturbance produced a restoration of health in local diseases, Hippocrates, and thousands since his time, have been led to the adoption of that inert practice emphatically termed the "*Medicine expectante*." It has always been a popular doctrine, and it is one that carries a great deal of plausibility in the face of it, that the

main object and the sum total of the powers of medicine, consist in aiding the natural efforts of the constitution for the removal of diseases. But this proposition requires considerable qualification. If it be merely meant, that medicine can only operate through the medium of the powers or energies of the living body, and that, independently of these vital energies, medicine has no operation, the position is a *truism* which cannot be questioned. But, if it be meant that the sole power and object of the medical art are limited to the furthering of all morbid excitement, and to the removal of obstacles to the completion of the purposes of that excitement; i. e. to assisting the efforts of nature, or guarding them from interruptions; the assertion appears to be altogether gratuitous, and nothing less than an abuse of language. In the first place, it is founded on the assumption, that all diseased action is salutary; which the effects of numerous diseases directly contradict, and which has no better foundation than two other gratuitous assumptions, namely, the existence of a morbid ferment in the blood, and of an *archeus*, or rational soul, governing all the operations of the animal economy. But, secondly, admitting the salutary tendency of diseased actions, considered as the efforts of nature, by what signs are we to interpret her intentions, or to discover when she requires assistance, and when restraint? On this point the greatest practical errors are likely to be committed, and have, in fact, been constantly and extensively committed, by those humoral pathologists, who have presumed upon their knowledge of the intentions of Nature.

Another popular and general opinion arising from the observance of this succession of diseased actions, and connected likewise with the humoral pathology, is the doctrine of *metastasis*, or transposition. It is found, that, on the disappearance of an eruption of the skin, inflammation of some of the viscera often takes place; and again, that the cure of gout in the extremities sometimes produces very formidable effects on the brain. Hence it was supposed, that there was an absolute translocation of fluid to the part secondarily affected. On this subject, however, as we again find some matter of an important nature in Mr. Pring, we shall make another extract.

"That certain diseases are related with each other in the way of cause and effect, is a remark which is contemporary with the earliest records of medical observation. It is also a piece of information *popular* with all classes, that the cure of one disease, whether spontaneous or by art, is sometimes followed by the occurrence of another. Thus, it is common to expect a favourable change of some internal disease upon the occurrence of a cutaneous eruption; thus, also, it has fallen under the observation of the ignorant and unprofessional, that a cutaneous disease, cured by external applications, often produces visceral disease. The language of the vulgar in the first of these cases is, that the internal disease is *coming out*; in the second, that the disease of the skin is *thrown in*, or settled upon the lungs for instance. To all physicians the class of facts here adverted to is well known; they have been made the subject of express treatises, and have been remarked upon in every age, and explained according to the prevailing pathology of the times. But the professors of medicine have of late been rather sceptical with respect to the assigned agency of the phenomena in question, though it is not improbable that their exception was taken rather against the doctrine of humours, &c. by which the phenomena were explained, than against the more modest inferences which they might be allowed to furnish. To all physicians of the present day the class of facts, designated as those of *related disease*, is well known: by some, these facts are not suffered to furnish an inference of a relation, that is, they are considered independent of each other; others admit the relation, and explain it in the language of the vulgar; others say that one disease, instead of falling or being thrown upon another part, is *converted* into a disease of

of another part: some physicians admitting the class of facts, and admitting also the inference of a relation, believe that the examples are very rare; others are inclined to think them *universal*; aye, and to allow them only one tendency, although they might tend to fifty, or five hundred, different effects. It will appear from this account that the existence of related disease has been long known, that the knowledge of it has become popular, and consequently there is no novelty in the statement of the fact. If we would improve our knowledge with respect to such diseases, it must be, not by ignorantly generalizing a single limited class, but by a just analysis of its laws, by an inquiry into its nature, its frequency, and by an accurate discrimination of its instances. The first subdivision which we have proposed of this class is that of related secondary disease, tending to cure the primary.

"Perhaps the most unequivocal examples of related secondary disease, tending to cure that which occurs in a primary seat, are those of metastasis. A person might have pneumonia clearly characterized by its symptoms: the symptoms of this local disease on a sudden shall cease, and the subject become immediately affected with phrenitis, which shall be followed by death within eight-and-forty hours. These occurrences may be confirmed after death by dissection (*quod vidimus testamur*). If we inquire into the causation in this example, there are those to whom the whole process is perfectly clear, who will reply, the inflammation left the lungs and went to the brain; was it then the *same inflammation*? and, if so, what was the object of its journey, or why did the inflammation take it into its head to travel? To analyze a little more curiously:

"Inflammation exists in the lungs: why does it cease in the lungs? either from that progressive causation (which has been described) taking place in the lungs, or from a progressive causation taking place elsewhere, by which a relation is opened between the seat of such progressive change and the properties engaged in the disease of the lungs, the end of which relation is, that disease is established in a secondary, and ceases in the primary seat. The evidence in this case, derived from the order of succession, is, that the disease in the lungs, being the antecedent, is also the cause of the disease in the brain which succeeds to it; in other words, the properties constituting inflammation of the lungs leave this seat, and are transferred to the brain. But, if the pneumonia is the antecedent to the phrenitis, what is the antecedent to the metastasis? or why does a disease leave a seat in which it is established? The alternatives which must form the answer to this question are suggested above: either a change takes place in the properties of the lungs, by which they no longer admit the state of inflammation, which is then assumed by some other viscus, already in a predisposed state to take up inflammation upon the cessation of it in another seat; or else the brain (continuing our example) assumes a state which is so related with the properties engaged in the inflammation of the lungs, as to produce a cessation of the inflammatory condition in this seat. From this view it is obvious, that the sensible succession is inadequate to determine the causation; for the brain may be the first to assume a change, by which it cures the disease in the lungs; or the disease may cease in the lungs, from causation proceeding in this seat, and be assumed by the brain, or any other seat which is predisposed to this result, under the relations which obtain upon the cessation of a disease in a seat which it had hitherto occupied.

"The alternatives here suggested must obtain in every case in which the primary ceases upon the occurrence of the secondary disease, but they do not necessarily obtain in all cases of related disease: thus we say dentition disorders the bowels; this is a case of simple succession, which, by analogies before explained, we infer to be also one of causation. If, upon the occurrence of dif-

order of the bowels, the process of dentition were suspended, we should then have to determine whether the change preparatory to the metastasis took place in the bowels or in the maxillary nerves. The progress of consumption might be suspended upon the occurrence of pregnancy; here consumption, as a related state, preceded pregnancy, yet we know, as the cause in this instance is palpable, that the seat of that change which produced the metastasis was the uterus, or secondary related seat. Thus also the catamenia may be checked by an exposure to cold, which will produce rheumatism; the change preparatory to, or causative of, the metastasis, is here also in the secondary seat. From these and many similar examples, we may perhaps conclude very generally, that the primary disease in metastasis does not produce the secondary, but that the metastasis itself is determined by a change which takes place in the secondary seat.

"Related disease, according to our reduced division, is of two kinds: 1st, as when a primary disease ceases upon the occurrence of a secondary; and, 2d, as when a secondary merely succeeds to a primary disease. The former instances have been expressed by the word *metastasis*, which implies that the disease leaves one seat and goes to another: this, however, is a conjecture without proof, for an inflammation of the eye may be cured by a spontaneous diarrhoea; if the identical properties of the primary disease went to the seat of the secondary, these properties, being those of inflammation, should produce inflammation of the bowels rather than a diarrhoea, which rarely occurs in inflammation of the bowels. If the identical disease of a primary is in metastasis transferred to a secondary seat, as the character of the secondary is commonly very different from that of the primary disease, it is necessary to infer that the identical nature of the primary disease is liable to be modified by peculiarities which belong to the secondary seat.

"This first class of related disease, then, viz. that in which a primary ceases upon the occurrence of a secondary disease, may be called *substitution* of disease; which merely expresses the fact that one disease has taken place, while another has ceased: the word 'vicarious,' which is familiar in medicine, expresses the same thing. The second class of related disease, viz. that in which the primary does not cease upon the occurrence of the secondary, may be called related extension of disease (the causative relation being in both cases assumed upon the grounds before stated).

"The examples of substituted disease are very numerous; and it is upon this experience of their frequency that the relation of cause and effect in some or other of its modes comes to be inferred to subsist very generally between them. We cannot, however, upon this point compel belief. Although the examples of substituted disease are very numerous, they are not sufficiently regular to admit a classification of those primary diseases which are likely to be cured (to beg an expression) by the occurrence of secondary ones. We can rarely, (owing to this irregularity) perhaps we can in no case, *anticipate* the cure of a primary disease by a secondary one; that is, we cannot pronounce that a certain secondary disease will succeed to the primary, and that the latter will then cease. We more frequently expect the *cessation* of a primary disease, when the symptoms of a secondary one, of the tendency of which we have had experience, do actually appear, than we anticipate a substitution of disease, while the existing symptoms occupy exclusively the primary seat. There is, however, an exception to this remark, when the same secondary has been substituted for the same primary disease, in one or more instances." Pring, ch. v.

Dismissing the consideration of these abstruse and obscure subjects, we next proceed to consider the *symptoms* of diseases; a subject of the first moment, and one which deserves the most unremitting observation; for, though the *cause* of the disease may be obscure, and though its

laws may be inscrutable, painful sensations and disordered functions are but too apparent. The great difficulty, therefore, which attends the study of symptomatology, is not to perceive symptoms, but their congeries or catenations; and to observe what are really the primary symptoms, and what are *sympathetic*, or secondary: for it is on these observations that the distinguishing of one disease from another depends. It was in this branch of pathology, in the *diagnosis*, that Hippocrates and Sydenham arrived at so great a degree of perfection. Indeed, in the writings of the former physician, we find so excellent a system of diagnosis, that we may even now turn to the study of it with great advantage. We have enumerated some of the leading rules of Hippocrates's symptomatology; rules which enabled him to discriminate diseases with great exactness, ignorant as he was of the knowledge of physiology, ignorant even of all that regarded the *pulse* except its most violent actions. Of late, a return to these rules has been inculcated by one of the first practical physicians of the age we live in, Dr. Marshall Hall: he has shown, that, though we had so far deviated from the rules of Hippocrates as no longer to mention them, yet that all scientific physicians had made the minutest observations on the phenomena of disease in their own minds, and had even fixed the identity of many complaints from the conviction these minute circumstances produced, without however attempting to analyze the appearances on which this conviction rested. To supply this analysis has been the object of Dr. Hall; and it must be confessed he has done it in the completest manner. To explain his meaning more clearly, we shall quote a few lines from him. He observes that there is in practical medicine a circumstance of the first importance, the *recognition of a disease*. The general appearance of a patient, the peculiar modification, the particular combination, and mutual influence, of the symptoms, give a *general* character to the whole disease, which is recognized and felt by the physician of experience and observation. "Every practitioner of medicine is continually engaged in the business of diagnosis as the very groundwork of his professional duties; and I fear the soundest and most enlightened are in the daily habit of acting upon views that they would be at a loss to describe, and have not time to analyze." This passage is quoted from the letter of a physician at once learned and experienced. It alludes distinctly to that general source of diagnosis constituted by the combination of all the circumstances of a disease. Dr. Hall adds, that he has had repeated opportunity of observing an eminent physician, on approaching a patient, and that even during sleep, express his sentiment respecting the nature of the affection and condition of the patient; the justice of which time and the event have verified. This circumstance first convinced him that there was something in the *general* aspect and appearance of diseases, on which the experienced physician founds a diagnosis, and which it would be of the greatest utility to analyze and describe.

Diagnosis, or the study of symptoms, is founded on the observance of various phenomena; the *external appearance*, the *sensations*, and the *impaired functions*, of the patient; not to speak of the more remote circumstances, which should never be forgotten as the probable cause of the disease; the liability to certain diseases from age, sex, temperament, &c. the effect of medicines, &c. With regard, then, to the *appearances* of the patient, the first and most obvious is the countenance; the countenance is principally composed and derives its expression from the action of the muscles; as the muscles are capable of rapid contractions, are numerous supplied with nerves, are the agents which particularly manifest the state of the mind, it is evidently a part in which morbid changes, either in the circulatory, muscular, or nervous system, will become apparent: hence it indicates many important circumstances to the eye of the practitioner. Dr. Hall observes that the following particulars are to be

noticed with regard to the face. 1. The colour, general or partial. 2. Tumidity or shrinking; general or partial. 3. Fulness or emaciation. 4. Action or inaction of the muscles; general or partial, continued or occasional, irregular or spasmodic. 5. The circulation. 6. Dryness or moisture; general or partial. 7. The temperature. 8. Particular features. 9. General expression.

The acute author justly directs our attention, however, to the previous study of the natural state of the countenance under various circumstances. He has directed us to consider the delicate and tumid state of complexion in the *infant*, the smallness of its features, the abundance of cellular tissue, the small development of the facial muscles, their unmarked degree of expression, the larger and fuller size of the eyes, the smallness of the features generally. In *youth*, he shows that their states become gradually changed, and approach more nearly to the appearance of the adult countenance. He says, however, that it is the nature and force of the circulation, and the condition of the cellular membrane, which impart the character to the countenance of youth. The circulation is strong and arterial; the cellular membrane injected, firm, and elastic. It is at this period and under these circumstances, that the tumidity and shrinking, observed in the different forms and stages of fever, and the changes from fulness to emaciation, in certain organic diseases, are most remarkable. The *adult* countenance is remarked to have a greater development of the muscular system, and the various expressions of pain, anxiety, &c. are extremely well defined. The disorder of the circulatory system, as indicated by redness, lividity, or pallor, is likewise well defined. In *old age*, on the contrary, the leanness, the flaccidity of the face, the want of colour, &c. are to be noticed. Sex further influences the countenance. In the female, the muscular system is less developed, the cellular more so. In the states of conception, of the first month of pregnancy, during the flow of the catamenia, a peculiar tumidity and enlargement of the features is observable. In advanced pregnancy, on the other hand, we often see thinness, anxiety, and uneasiness, visible in different degrees in the female visage.

The *temperament* falls next under consideration, as its principal characteristics are manifested in the face. *Mental emotion*, too, should not be forgotten. Its influence is sometimes exerted on the muscular system, sometimes on the circulation, and sometimes on particular features. Seriousness, gaiety, moroseness, are characterized by their particular effects on the countenance, produced principally by means of the muscular system. Continued and deep thought causes this system to be affected with an unusual degree of contraction. Expectation and surprise induce a relaxation of the muscles. Anger, shame, fear, affect the circulation principally; the first moves the blood upwards, and suffuses the forehead; shame diffuses a blush over the cheeks; fear renders the countenance pale and shrunk, and induces dryness of the tongue. Joy and grief equally occasion a flow of tears. Enthusiasm animates the countenance as it does the breast; despondency depresses the expression, as it makes the heart beat more feebly. External causes often influence the countenance in a manner that it is necessary to be apprised of, in order to prevent an erroneous diagnosis. The immediate effect of bodily exertion and of external heat is to suffuse the countenance; exposure to cold contracts the features, and frequently induces an appearance of lividity. Repletion of the stomach occasions an appearance of heaviness and of propensity to sleep, with a degree of suffusion over the face. Want induces an opposite effect, an appearance of mental and bodily depression. Wine suffuses the eyes and face, and, according to its quantity, enlivens or obliterates the expression.

The next part which falls under our contemplation in diagnosis

diagnosis is the GENERAL SURFACE, in which the following circumstances are to be attended to; viz. 1. The surface in general; as to colour, tumidity, or shrinking of the integuments; œdema or anasarca, corpulency or emaciation, roughness or smoothness of the skin, dryness or moisture of the skin, and temperature. 2. The hands and feet in particular. 3. The elementary cutaneous affections.

And here again the circumstances of age, sex, and temperament, are to be noticed with the same minuteness as in regard to the face. That part of the cutaneous expansion which envelopes the tongue has always been noticed as an important indication of the existence of disease. It should be viewed with regard to, 1. Its moisture or dryness, whether general or partial. 2. Its being with or without fur, clean or loaded, swollen or indented. 3. The enlargement or disappearance of its papillæ. 4. Its colour. 5. How protruded. 6. The internal mouth in general, and the taste and breath, should likewise be examined.

The attitude in disease is next to be considered. This subject comprises a view of, 1. The position. 2. Changes of position. 3. The caution observed in moving; or the opposite state of writhing, or of jactitation. 4. The state or effects of muscular action; and the state of muscular power or debility.

The healthy posture of infants during sleep is various. The young infant usually lies on its back, often with its hands and arms raised above its head, or laid upon its chest, or spread open, and with its lower extremities drawn upwards. When it is laid on its side, the upper and lower limbs are still placed in a state of complete flexion and relaxation. The posture usually remains unchanged, unless the infant be disturbed by external objects of sense, internal emotions, or disease.

In the healthy and undisturbed sleep of adult persons, the usual posture is that on one side, the body being frequently inclined rather to the prone than to the supine position. The head and shoulders are generally somewhat raised, and, together with the thorax, bent gently forwards. The thighs and legs are in a state of easy flexion. The position is apt to be changed from time to time, the person lying on one or other side alternately.

The attitude, motions, and manner, are considerably influenced by the temperament, the degree of bodily strength, by the state of the mental operations, and by the passions. In a state of great debility, whether from age or disease, the body uniformly falls into the supine position; and the recovery of the usual position of the side is always a sign of returning strength.

These, then, are the morbid appearances which are to be regarded in symptomatology. As to the second head of morbid symptoms, uneasy or painful sensations, they are the most frequent concomitants and signs of all diseases. Few diseases are free at least from uneasiness: for, as there is a degree of pleasurable feeling belonging to the healthful action of all the organs of the body; so, when these are interrupted and disturbed, the sick man suffers pain, anxiety, and various disagreeable sensations. Besides the various modifications of pain which we describe by comparing them with the sensations produced by different causes, such as a burning, stinging, stabbing, gnawing, pain; a shooting, throbbing, binding, pain, and so forth; itching, tingling, a sense of lassitude, of torpor, or numbness, of stupor, of heat, of cold, of weight, nausea, giddiness, faintness, ringing in the ears, and a multitude of uneasy feelings, indicate the varieties of disease. Sometimes the severity of these feelings constitutes the principal part of the disease; and they agitate and distress or terrify the patient so much, that they become more dreadful than even the apprehension of death; indeed, in many cases, these painful sensations are by no means destitute of danger, from whatever cause they originate, as they may wear out the powers of life by their incessant irritation.

The third means of diagnosis is the consideration of impeded or deranged functions. This is a subject of the greatest use in practical medicine; for, as the knowledge of healthy function is the grand desideratum in all our investigations of the animal frame, so a knowledge of their derangements may be considered the principal part of the study of disease. These derangements often constitute individual disease; often, on the other hand, they are indicative of general or remote disease. It is for the latter purpose that we now consider them; and it need hardly be remarked that the two previous methods of diagnosis which we have considered, are, in a great measure, subservient to this. In regard to derangement of the digestive function, independently of the examination of the tongue, breath, &c. before enumerated, we have to consider, firstly, the function of the pharynx and œsophagus, as it affects deglutition. Secondly, Of the stomach; and herein of the appetite, thirst, hiccups, eructation, nausea, vomiting, and the matters rejected. Thirdly, Of the bowels; as constipation, diarrhoea, tenesmus, involuntary stools, flatulency, borborigma, distention; the state of the fæces; discharges of mucus, blood, or pus.

The function of respiration is next in order; and this subject comprises a view of, 1. The mode of respiration. 2. The effect of a full inspiration. 3. The kinds of cough and of expectoration. 4. Sneezing, gaping, &c. 5. The state of the voice. 6. The phenomena manifested by the stethoscope, and the pulsation of the heart.

In the circulatory system, the most important diagnostic appearances are to be noticed with peculiar care. That alternate dilatation and contraction of the arteries, which is called the pulse, is the chief mean by which we are guided in ascertaining the nature of acute diseases. The following divisions of this phenomena have been made. The slow pulse, the quick pulse, the soft pulse, the hard pulse, the intermitting pulse, and the full pulse. Many other varieties have been enumerated by different authors, by Galen, Borden, Nihel, Bellini, and Massaria; but they are entirely fanciful.

Before we proceed to describe the varieties of the pulse, it will be necessary to speak of the many discrepancies it exhibits in health. These anomalies had not escaped the penetrating eye of Celsus. He aptly observes, "Venis enim maxime credimus, fallacissimæ rei; quia sæpe istæ leniores celerioresque sunt, et ætate, et sexu, et corporum natura: sæpe eas concitat et resolvit sol, et balneum, et exercitatio, et metus, et ira, et quilibet alius animi affectus: adeo ut, cum primum medicus venit, sollicitudo, ægri dubitantis, quomodo illi se habere videatur, eas moveat. Ob quam causam, periti medici est, non protinus ut venit, apprehendere manu brachium; sed primum residere hilari vultu, percontarique, quemadmodum se habeat: et si quis ejus metus est, eum probabili sermone lenire; tum deinde ejus corpori manum admovere. Quas venas autem conspectus medici movet, quam facile mille res turbant!" Lib. iii. cap. 6. In our own time, Dr. Falconer has paid much attention to these circumstances; and has shown that, before we can derive any information from the pulse, it will be necessary to observe the varieties which exist in its natural standard, and also the changes to which it is subjected by common causes. The standard natural pulse has been variously estimated: perhaps the exactest computation is that which reckons 73 beats in the space of a minute. The pulse is generally, however, quicker than this in women, in persons of sanguineous temperament, and in young children. The increase of pulse in women appeared to be in the ratio of one seventh more than in man. As to children, according to Dr. Heberden, "the pulse of a healthy infant asleep on the day of its birth is between 130 and 140 in one minute: and the mean rate for the first month is 120; for during this time the artery often beats as frequently as it does the first day, and I have never found it beat slower than 108. During the first

first year, the limits may be fixed at 108 and 120. For the second year at 90 and 100. For the third year at 80 and 108. The same will very nearly serve for the fourth, fifth, and sixth, years. In the seventh year, the pulsations will be sometimes so few as 72, though generally more." From the twelfth year, then, except that the pulsations are much more easily quickened by illness or any other cause, they differ but little from those of a healthy adult, the range of which Dr. Heberden states to be from a little below 60 to a little above 80 in a minute. From an average of five-and-twenty boys, observed by Floyer, between the ages of twelve and sixteen, the pulse was about 83; in all of them above 80. With regard to the diminution of pulse which has been said to be observable in the decline of life, Dr. Falconer is disposed to believe, though not very confident in his opinion, "that the pulse in a healthy person becomes gradually slower from about forty-five years of age to about sixty, after which period it begins again to grow quicker, and to become, as several other circumstances in the system do also, more resembling that of children. But to this," he adds, "there are undoubtedly many exceptions."

It has been generally supposed that stature had a great influence on the pulse; and Senac, from observations made on a hundred men in the royal guards, deduced the following estimate of pulses in proportion to stature: namely, at two feet, pulse 90; at four feet, pulse 80; at five feet, pulse 70; and at six feet, pulse 60. Dr. Bryan Robinson has likewise made a computation, but it differs from Senac's; and, upon the whole, this point does not seem to be satisfactorily ascertained. Haller especially mentions, in opposition to this opinion, that the Swiss people, who are generally tall, have quick pulses; and further instances the fact, that he was himself six feet high, and that his own pulse beat 78 in a minute.

The pulse is moreover influenced by the time of day. In the morning the pulse is generally slowest, and becomes accelerated towards evening. This is most remarkable in persons in whom a high degree of nervous sensibility is apparent. The principal causes which accelerate the pulse are food, exertion of every kind, (even speaking or standing,) warmth, the passions of hope, joy, and anger; and sometimes, the reaction which supervenes to sudden shocks and impressions on the nervous system. On the other hand, the pulse is depressed by abstinence, sleep, fear, anxiety, and grief; and by certain degrees of cold. But the operation of all these causes is subject to great variation, and is often counteracted by the influence of opposite agents.

In feeling the pulse, the degree of *quickness* is of course easily determined by a stop-watch; the degree of *force* is estimated by the resistance which the artery opposes when compressed by the finger. In order to ascertain this resistance, the pulse should be strongly compressed by three of the fingers until no pulsation is experienced; after which, by gradually relaxing the fingers, we shall ascertain its proportion with a tolerable accuracy. It is to be remarked, however, that the obesity of certain persons alters this circumstance; for not only is it more difficult to feel the degree of resistance of the vessel when covered with a thick layer of fat, but fat persons have likewise slower pulses than lean ones. Another distinction of the pulse is taken from its *hardness*: this term is used to imply a peculiar sudden vibration, like the sensation communicated by the tense cord or wire of a musical instrument. "Some books," Dr. Heberden remarks, "speak of *intermitting* pulses as dangerous signs, but I think without reason; for such trivial causes will occasion them, that they are not worth regarding in any illness, unless joined with other bad signs of more moment. They are not uncommon in health, and are perceived by a peculiar feel at the heart by the persons themselves every time the pulse intermits." We have generally considered these intermitting pulses as of dyspeptic origin, and have seen them removed, in fevers, by

a purge. Where the pulse intermits, and is very unequal in its beats, and there is at the same time palpitation of the heart, oppression of the breathing, lividity of countenance, or other serious symptoms, then the intermission is probably one among the signs of some affection of the heart; but in ordinary cases, occurring with symptoms of indigestion, or slight feverishness, it is perfectly void of danger. It is curious, indeed, that irregularities of the pulse are sometimes habitual, and disappear only with good health. Dr. Heberden says, "many persons will likewise have unequal pulses without any other sign of ill health. I have met with two, who, in their best health, always had pulses very unequal, both in their strength and the spaces between them; and, upon their growing ill, their pulses constantly became regular; and it was a never-failing sign of their recovery, when their arteries began again to beat in their usual irregular manner." The writer of this article can add to these, an instance of an old lady of his acquaintance in whom the same appearances as recorded by Dr. Heberden are very strikingly marked.

The propriety of these divisions was formerly much questioned, as implying an unnecessary and frivolous degree of minuteness; but it seems scarcely worth while to make any remark on this subject, as their necessity is now generally admitted, and is easily proved by the grand criterion of medical theory—its practice. It must be admitted, however, after all, that the pulse, as Celsus says, is "*fallacissima res*;" and it is only by regarding it in conjunction with the other modes of diagnosis that we are enabled to make practical use of its various phenomena.

The circulating system presents further points of consideration in regard to morbid changes in the blood. These alterations are little understood. It is probable that many exist of great importance, which are nevertheless not cognizable to our senses. The most obvious change in the blood is that which constitutes what is called *fazy* or *inflammatory blood*. It takes the former name from a tough buff-coloured coat which forms on its surface after coagulation, and which, according to Hewson, consists of albumen and a portion of fibrine; and the latter, from its being peculiar for the most part to inflammatory diseases. Changes of less magnitude have been observed in various other diseases; as a peculiar blackness in the blood of scorbutic patients, the want of red colour in, and the dilute quality of, the blood in some stages of dropical and chlorotic affection, &c. But we forbear to enter into any further notice of this subject at present. The reader may consult, for more particular information on this head, the works of Hewson, Fourcroy, and Thackrah.

The state of the *excretory system* is principally examined by analysis of the excreted substances; as of the urine, sweat, uterine discharge, &c. but in many instances the investigation of these substances is very obscure.

The last system which remains to be noticed as affording certain information in respect to diagnosis, is the *nervous*. The operation of the five senses, the elevated or depressed state of the spirits, the ratiocinative and imaginative functions, afford notice of the degree of danger of some maladies in a most certain manner; and hence deserve to be studied with diligence and attention.

We now proceed to speak of *THERAPEUTICS*, that branch of medicine to which all the other branches stand in relation only as auxiliaries; auxiliaries, it must be confessed however, the attainment of which is absolutely necessary ere we can practise this branch in a philosophic manner. Unfortunately this truth has till lately been unknown. The long, the tedious, and (to untutored minds) the uninteresting, path of anatomical research, of observation, of experiment, and of cautious deduction, suits not the taste of mankind in general. Hence they have attempted to cure their infirmities by shorter and pleasanter methods; and hence, even now, the wonder-working specific claims unmerited attention; and the therapeutical

therapeutical branch of medicine is purged of fewer of its ancient errors than any other of the pathological sciences.

The removal of disease may be effected by various agents. The first, the most obvious, and indeed the only ones of which the *modus operandi* is clearly understood, are those which act according to the common laws of matter. These agents are few in number: they consist of the surgical operations; of those substances which operate chemically, as solvents of stones in the bladder, clysters dissolving scybala, &c. The second are those which act on the various parts of the animal system by means of relation with the vital properties. But, as these properties are little understood, it is very evident that we cannot trace with any accuracy their relation with medicinal substances. Hence much of the therapeutical branch of medicine rests on inferences of a very loose and uncertain character. The action of most of the articles of the *materia* may be supposed to affect principally the contractility of fibres or of vessels. Those which increase the action of that power are called *stimulants*; those which diminish it, *sedatives*; and medicines producing visible effects on the sensibility of the nervous system are called *narcotics*.

The difficulty now to be overcome is to class the numerous substances of the *materia medica* under each of these heads; a difficulty at present insurmountable; for not only we do not know but the impaired state of sensibility may arise from altered action of the contractile forces, or that those forces may not be influenced originally by the altered sensibility; but, further, we require a long series of experiments to be instituted ere we can admit into our classification one half of the drugs contained in our Pharmacopœia. For this reason, deeming it more consonant with true philosophy to confess our ignorance than to perpetuate erroneous doctrines, it is our intention, when we come to that part of our article which more particularly relates to medicines and their doses, to adopt the simple order of the alphabet. And indeed, the pompous arrangements of the *materia medica* into classes and orders, with other subdivisions, are now derided by the faculty. Some medicines possess very different powers, so that their proper places are not easily ascertained. They must therefore be repeated under different heads; and it is evident how many repetitions such arrangements must occasion; since, when an article is properly placed, an increased dose of the same would often carry it into another division, and the same drug will have a different effect in different cases or states of disease. At p. 44, we have given the outline of Darwin's arrangement, which is the most concise; but it does not satisfy our minds. Kirby's Tables contain 18 classes, each, of course, divided into at least three sections, to include animal, vegetable, and fossile, substances; and Dr. Cullen has 23 classes, which are these:

Astringents.	Diluents.	Sialogogues.
Tonics.	Attenuants.	Expectorants.
Emollients.	Infusants.	Emetics.
Corrosives.	Demulcents.	Cathartics.
Stimulants.	Antacids.	Diuretics.
Narcotics.	Antalkalines.	Diaphoretics.
Refrigerants.	Antiseptics.	Menagogues.
Antispasmodics.	Errhines.	

Of those who have copied Dr. Cullen's arrangement with some modification, there is perhaps none that deserves more attention than the anonymous author of the "Thesaurus Medicaminum," and a "Practical Synopsis of the Materia Alimentaria and Materia Medica." This author distributes the articles of the *materia medica* into 12 classes. 1. Evacuants, comprising errhines, sialogogues, expectorants, emetics, cathartics, diuretics, diaphoretics, emmenagogues. 2. Emollients, comprising diluents and emulcents. 3. Aborbents. 4. Refrigerants. 5. Antiseptics. 6. Astringents. 7. Tonics. 8.

Stimulants. 9. Antispasmodics. 10. Narcotics. 11. Anthelmintics; and 12. Heteroclites; this last being formed to include those articles that could not properly be reduced under the former heads.

Mr. Murray's arrangement, which is very ingenious, is founded principally on the doctrine of *universal stimulus*, and he thus explains the principles on which it is established. "Those stimulants, which exert a general action on the system, may first be considered. Of these there are two well-marked subdivisions, the diffusible and the permanent; the former corresponding to the usual classes of narcotics and antispasmodics; the latter, including likewise two classes, tonics and astringents. In these there is a gradual transition passing into the one from the other, from the most diffusible and least durable stimulus, to the most slow and permanent in its action. The next general division is that comprising local stimulants; such are the classes of emetics, cathartics, expectorants, sialogogues, errhines, and epispastics. These all occasion evacuation of one kind or other; and their effects are in general to be ascribed, not to any operation exerted on the whole system, but to changes of action induced in particular parts. After these, those few medicines may be considered whose action is merely mechanical or chemical. To the former belong diluents, demulcents, and emollients. Anthelmintics may perhaps be referred with propriety to the same division. To the latter, or those which act chemically, belong antacids or absorbents, lithontriptics, escharotics, and perhaps refrigerants. Under these classes may be comprehended all those substances capable of producing salutary changes in the human system. Several classes are indeed excluded which have sometimes been admitted; but these have been rejected, either as not being sufficiently precise or comprehensive, or as being established only on erroneous theory." Murray's Elements.

Mr. Murray's arrangement will best be understood from his own Table.

A. GENERAL STIMULANTS.

a. Diffusible.	{ Narcotics.
	{ Antispasmodics.
b. Permanent.	{ Tonics.
	{ Astringents.

B. LOCAL STIMULANTS.

Emetics.
Cathartics.
Emmenagogues.
Diuretics.
Diaphoretics.
Expectorants.
Sialogogues.
Errhines.
Epispastics.

C. CHEMICAL REMEDIES.

Refrigerants.
Antacids.
Lithontriptics.
Escharotics.

D. MECHANICAL REMEDIES.

Anthelmintics.
Demulcents.
Diluents.
Emollients.

Dr. Parr alters the arrangement of Dr. Cullen's classes, and increases them to 26, as below:

Emetics.	Refrigerants.	Antalkalines.
Cathartics.	Antispasmodics.	Antiseptics.
Diaphoretics.	Tonics.	Emollients.
Diuretics.	Sedatives.	Corrosives.
Expectorants.	Attenuants.	Astringents.
Errhines.	Infusants.	Antidotes.
Sialogogues.	Alterants.	Lithontriptics.
Emmenagogues.	Demulcents.	Anthelmintics.
Stimulants.	Antacids.	

C c

Whilst

Whilst Dr. Cullen's classification has been thought too diffuse, and Dr. Darwin's much too contracted, and adapted merely to his own exceptionable system of nosology, Dr. Kirby, in his small tract, entitled "Tables of the Materia Medica," has inserted seventeen classes, which are, upon the whole, judiciously selected; and his arrangement has been adopted by most of those modern writers who are of opinion that the materia medica are so numerous as to require a *methodus*. The classification is as follows; and, as hinted before, every class is subdivided, as far as possible, into an animal, a vegetable, and a mineral, section.

Class I. EMETICS.—Emetics are such medicines as are calculated to excite vomiting, and thus discharge the contents of the stomach.

II. EXPECTORANTS.—Those medicines are called expectorants, that are employed to promote the excretion of pus or mucus from the windpipe and lungs. In general they are emetics given in smaller doses, though there are several medicines, especially some of the gum-resins, that are considered to act in this way, without any tendency to excite vomiting.

III. DIAPHORETICS.—Diaphoretics are those remedies that are intended to promote, keep up, or restore, the excretion of perspirable matter from the skin; and of these some act but feebly, and only increase the insensible perspiration, while others act more powerfully, and, under favourable circumstances, excite sweating.

IV. DIURETICS.—These are such medicines as promote or increase the excretion of urine.

V. CATHARTICS.—Cathartics are those medicines which promote or increase the evacuation of excrementitious matter, or of serous fluids, from the bowels.

VI. EMMENAGOGUES.—Medicines which are supposed to act on the womb, and to promote the discharge of the menstrual flux; but it is more than doubted if any drugs whatever have that peculiar action.

VII. ERRHINES.—Those medicines are termed errhines that are employed to promote an increased discharge of mucus from the nostrils.

VIII. SALAGOGUES.—These are employed either to promote an increased flow of saliva, or to produce such an action on the gums as shall indicate their having been received in sufficient quantity into the circulation. Under the former division are ranked several vegetable substances; under the latter are included only mercury and its preparations.

IX. EMOLLIENTS.—The medicines commonly called emollients consist either of diluting liquors, formed of simple water; or certain vegetable infusions; or mucilaginous and oily matters that have the mechanical property of defending the parts to which they are applied, from the action of acrimonious substances that pass over them, or of softening and relaxing the skin and other external parts. The first of these are commonly called *dilutents*, the second *demulcents*, and the third simply *emollients*.

X. REFRIGERANTS.—Under this term are comprehended those remedies which are employed with a view to diminish the preternaturally increased heat that takes place in the body during fevers and several inflammatory affections.

XI. ASTRINGENTS.—Astringents are defined by Dr. Cullen to be such substances as when applied to the human body produce a condensation and contraction of the soft solids, and thereby increase their density and force of cohesion. If they are applied to longitudinal fibres, the contraction is made in the length of these; but, if applied to circular fibres, the diameters of the vessels, or the cavities which these surround, are diminished.

XII. TONICS.—Tonics are those medicines which are suited to counteract debility, or to give strength and energy to the moving fibres.

XIII. STIMULANTS.—Most of the articles of the Materia Medica might, in an extended sense, be called *stimu-*

lants; but this term is, by the general consent of physicians, restrictively applied to those medicines which possess the power of sustaining or increasing the vital energies; of raising and invigorating the action of the heart and arteries; and of restoring to the muscular fibre, when affected with torpor, its lost sensibility and power of motion.

XIV. ANTISPASMODICS.—Those medicines which have been found by experience to put a stop to convulsive motions, or spasmodic contractions of the muscular fibres, are called *antispasmodics*. Most of them are stimulants, some narcotics, and some are considered as specific antispasmodics.

XV. NARCOTICS.—This term has been usually applied to those remedies which are calculated to relieve pain and procure sleep. They have also been termed *anodynes* and *hypnotics*; and most of them were formerly ranked in the class of sedatives.

XVI. ANTHELMINTICS.—Those medicines which are employed with a view to expel worms from the bowels, are called anthelmintics.

XVII. ABSORBENTS.—Medicines which are taken inwardly for drying-up or absorbing any acid or redundant humours in the stomach or intestines. They are likewise applied outwardly to ulcers or sores, with the same intention.

That each of these systems was framed by their authors in consonance with their peculiar and erroneous theories is a sufficient reason for their present dismissal. Granting, however, that the effects of the substances thus classified were correctly detailed, it is very evident that most of the classes are easily resolvable into the class of *stimulants*; for supposing that any medicines can produce expectoration, that process can only be accomplished by stimulating the exhalant vessels of the bronchial expansion; and the same remark is applicable to most of the other classes above mentioned. With respect to stimulants, the most proper pathological division appears to be according to the particular structures on which they exert their effects. Of these the most general are purgatives, emetics, diuretics, and diaphoretics; not to mention emmenagogues and a host of others, the separate and independent action of which does not appear to be well known.

PURGATIVES.—Many errors have been committed in the administration of this useful class of substances. The heterogeneous mixtures which have been made of them, and their indiscriminate application, sufficiently prove that the physicians of the last century did not properly understand the use of them. To Dr. Hamilton and Mr. Abernethy we are indebted for pointing out the general and salutary effects produced by the exhibition of purgatives. Those authors have clearly shown, that many nervous affections, and even chronic diseases of the secreting and vascular functions, may be cured by these remedies. Dr. Hamilton's success in treating febrile and hysterical diseases has been truly great; and Mr. Abernethy has demonstrated their singular utility in local diseases, as obstinate ulcers, &c. Accordingly the benefit of cathartics is now very generally estimated; and we are perhaps in danger of falling into an error quite opposite to our predecessors, that of placing too much reliance on their use.

Sufficient attention however has not been paid to the particular action of different cathartics. Practitioners have been too much in the habit of prescribing them indiscriminately, without sufficiently alluding to the effects which each drug is capable of producing on the different parts and structures of the alimentary canal. Mr. A. Carlisle first directed the attention of his professional brethren to this point. "Cathartics," he observes, "appear to operate in the following ways; viz. either by exciting the peristaltic motion of the intestines to an unusual degree, and thereby causing them to protrude their contents more quickly through the alimentary passage;

or by increasing the fluidity of the alimentary mass by substances which are obnoxious; or to induce these two effects. The first kind of cathartics probably act upon the muscular fibres of the intestines, and the second kind seem to act upon the vascular parts of the intestines. Some cathartics induce an unusual flow of bile into the intestines; and in this respect they resemble, in their *modus operandi*, the natural stimulus of the bowels, which is the bile. Other cathartics stimulate the exhalant vessels of the intestinal membranes, and thereby give an excess of fluidity to the volume of their contents: or all these several modes of operation may be united by a suitable mixture of cathartic medicines. Again, some cathartics act especially upon the stomach, and upon the upper portions of the intestinal tube; and others seem to stimulate particularly the lower and larger intestines. Some operate by emptying the bowels only, without diminishing the animal vigour; whilst others sink the strength of the patient by emptying the sanguineous system at the time they hurry away the nutritious aliment."

With respect to the substances capable of producing the above-mentioned effects; the ingenious author is inclined to think that rhubarb acts almost exclusively on the stomach and on the large intestines; on the former organ especially when combined with ipecacuanha. Mercurial salts (of which those in most common use are the blue pill and calomel) operate in two ways: by inducing secretion of bile from the liver, and hence furnishing the bowels with their natural stimulus to action, or by their direct effect on the coats of the larger intestines inducing secretion from the surfaces of those organs. Mr. Carlisle supposes that the neutral salts act by exciting watery discharges; but the action of these substances is modified by the quantity of fluid in which they are taken, and by the previous condition of the alimentary canal; for they may be decomposed by the morbid secretions. On this latter account Epsom salts are particularly recommended by this author, because, even if decomposed, their operation is still ensured by the purgative quality of their base. In regard to the modification produced on the action of these salts by their dilution, it is a curious remark, that small quantities of salts dissolved in large quantities of water act with as much force, greater certainty, and less subsequent exhaustion, than much larger quantities in smaller menstria. Castor oil may be considered as one of those rare purgatives which act generally on the intestinal canal; perhaps by its viscid oleaginous part on the superior portion of that canal, and by its acriminous resin on the lower bowels. Its resinous portion is supposed by this author to be particularly obnoxious to absorption; and hence we may infer arises the certainty of its operation. Jalap is one of those cathartics which seems to stimulate exclusively the peristaltic action of the bowels, and is therefore of much use in evacuating them in acute diseases. Scammony, gamboge, and elaterium, act mostly on the muscular parts of the bowels, and perhaps the nervous; but these effects, except in combination with other medicines, are very precarious. Aloes or Colocynth are generally supposed to act on the lower parts of the intestines; but that effect probably arises rather from the insolution of those substances until they arrive so far, than from their specific action on those parts.

It seems scarcely necessary to remark on the advantageous mode of using various sorts of purgatives in conjunction, as that practice has very generally obtained, and is very successfully applied to all kinds of medicinal substances.

Cathartics may be administered in the form of *clyster*; and in many instances this method has great advantage over the ordinary method. The French employ "*lavements*" on almost all occasions. They are chiefly useful in cases in which the stomach is unable to retain, or would be injured by, irritating medicines; as in *gastritis*, or inflammation of the stomach, and in febrile complaints

attended with extreme debility, especially in the latter stages; since by this mode the contents of the lower parts of the intestines are simply evacuated, without any stimulus to the secreting vessels, and with little or no irritation of the system at large. It is also to be observed, that considerably larger doses may be safely employed in this way. It is of advantage to employ some emollient substance, combined with the purgative, to defend the intestine in some measure against the acrimony of the medicine. Thus, if the electuary of senna is used, it may be conveniently rubbed up with a little oil; and the whole will then mix uniformly with milk or any other liquid. When clysters are employed as purgatives, it must be remembered that they cannot pass higher up than the valve of the colon, and consequently that they can only act directly upon the large intestines. Therefore, they can seldom entirely supply the place of purgatives by the mouth, which pass through and excite the whole intestinal canal; but they prove most useful auxiliaries, particularly in those cases of intestinal disorder that are attended with much vomiting and irritability, where, besides emptying the lower bowels, they act as topical fomentations, and very often induce ease and sleep when other methods fail. In such cases, therefore, they should be in pretty large quantity, not very stimulating, and as warm as the patient can bear them. As vermifuges; also, clysters have a peculiar and local use, where the worms are lodged in the lower intestines; particularly as very highly stimulating medicines are often required to dislodge these troublesome animals, which, if given by the mouth, might produce a good deal of inconvenience and irritation.

The reader will clearly perceive how insufficient these observations are, and how much the investigation of the remote *modus operandi* of various purges still remains a desideratum. The subject, however, is confessedly surrounded with much difficulty; yet a series of experiments might probably be devised to throw further light on this interesting subject, which should likewise extend to a much larger number of cathartics than those we have hitherto considered.

EMETICS, or those substances which operate a rejection of the contents of the stomach, are of various kinds. Most of the common poisons are emetics; and many other substances, not deleterious in themselves, do, when administered in excessive quantities, produce sickness. Some disputes have been made public concerning the action of these substances; some physiologists supposing that they produced their effect by stimulating the stomach to contraction, others that the abdominal and costal muscles were the agents concerned, and which produced vomiting, the stomach performing no contraction. Many experiments have been made on this point; and the result renders it probable that both the above-mentioned powers are concerned in the act of vomiting, and that the œsophageal part of the stomach is first acted on.

The use of emetics in what may be termed a restrained or limited degree is frequently attended with the most powerful effects. The sensation of *nausea*, that sensation which occurs previous to the act of vomiting, is in the highest degree debilitating: it reduces the action of the heart, and is attended with very general secretion from the mucous expansion of the nose, eyes, fauces, air-cells, and stomach. Hence doses of emetics capable of producing this effect and no more are used in acute diseases: for it is worthy of notice, that beyond the above-mentioned point (that of nausea), when vomiting succeeds, the system appears *stimulated*, and the cerebral circulation increased. So that to produce nausea, and to produce vomiting, is a very different matter, and worthy of particular attention.

The action of the urinary system is increased by increasing the natural quantity of fluids swallowed, or by the use of DIURETICS. The number of substances which have been praised by different writers, as possessed of diuretic

retic powers; or capable of stimulating the action of the kidneys, is very great, especially from the vegetable world. Many of them, however, are very inefficacious; and it is the common imperfection of the whole of this class to be very uncertain in their operation: sometimes the more feeble diuretics will succeed, when the stronger have failed; and often, after every variety of kind and combination has been tried, the secretion of urine remains unaltered. Digitalis, squill, mercury, and crystals of tartar, separately or combined, are the most efficacious of the class; but the alkalies both fixed and volatile, some of the neutral salts, the nitrous ether, the terebinthates, &c. are by no means useless as auxiliaries. There is perhaps no class of medicines, in which a combination of two or more substances, possessing similar powers, is so frequently important, as in that of the diuretics. Thus the use of potash, joined with bitter vegetables, is recommended by sir John Pringle, as an efficacious medicine: and, as the alkaline substances may be often prevented, by purging, from reaching the kidneys, so their diuretic effect may be often more certainly secured by giving an opiate at the same time, according to the practice of Dr. Mead. A combination of the squill, with digitalis, and some of the less purgative preparations of mercury, as the common blue pill, is occasionally very active in its diuretic operation; and, in children, or in old and feeble people, the union of the spirit of nitrous ether, or of other diuretic substances, with the bark, or other vegetable tonics, appears to be often very serviceable.

Diuretics, moreover, receive great additional power from perfect solution; and it was remarked by Cullen, that the union of diluents with these substances was productive of the best effects. Diuretics are most generally had recourse to for the purpose of determining fluids to the kidneys which were liable to be effused; and indeed they have been supposed to act an important part in removing them when that process had occurred. If the latter supposition be admitted, we must suppose that a diuretic possesses immediately the power of promoting absorption; and of that we have no direct evidence. On the other hand, that diuretics can prevent the further accumulation of effusions is a fact of which we have strong inference, and which is accordant with the inexplicable law of *derivation* so generally observed.

DIAPHORETICS are those substances which promote insensible perspiration, or sweat. Their *modus operandi* may be inferred to arise, either by direct application, or by nervous consent. If diaphoretics are assimilated, pass into the round of the circulation, and are applied directly to the cutaneous vessels, they may produce increased contraction, or the reverse: or otherwise, the powerful sympathy observed between most parts of the mucous expansions, and especially between the stomach and skin, authorise us to believe, that the contraction or dilatation of the vessels of the skin may be produced by nervous excitement, first impressed on the stomach, thence propagated to the nervous general communication, and lastly to their vessels; or, in other words, the effect may be produced by sympathy.

The older practitioners took great pains with these medicines: the sudorific plan of treatment was the fruitful source of miliary eruptions, and a variety of troublesome complaints. The use of diaphoretics is at present much restricted, particularly those which increase the general circulation.

There are two means, by which perspiration may be induced, and the action of sudorific medicines promoted; namely, by application to the skin, and ingesta. When the skin is not in a state unfavourable to perspiration, the application of heat to the surface of the body, without any assistance from powers internally applied, is sufficient to produce sweating; and the application of cold, i. e. the abstraction of the heat, can almost certainly prevent the same, though considerable powers are employed within. Thus sweating may be obtained by the heat of

the air, applied as in what is called the *dry-bath*, or by increasing the heat of the surface by previous warm bathing, or by accumulating the warm effluvia of the body itself upon its surface. This last may be done by covering up the body very closely with such coverings as may both prevent the escape of the warm effluvia arising from them, and at the same time prevent the access of external cold. But, farther to favour the diaphoretic action, a quantity of warm liquid may be taken into the stomach, which not only excites the general circulation, but particularly, by consent of the vessels on the surface, of the body with the stomach, excites the action of those vessels which pour out sweat. The use of warm liquids alone, especially in the morning, while in bed, where there is a general disposition to perspiration, is in slight febrile cases an ample sudorific. These two means, of covering up the body closely, and taking warm liquids into the stomach, are what we call the sudorific regimen; which will often answer alone the purpose of exciting diaphoresis; is often necessary to the operation of sudorific medicines; and will always render their operation more complete and permanent. *Cullen's Mat. Med.* vol. ii.

The combination of opium with diuretic medicines is valuable in two ways: the opium aids the operation of the sudorific, on the one hand; and, on the other, the sudorific, by determining to the skin, renders the anodyne effect of the opium more certain and complete, and prevents some of its unpleasant influence on the head: for opium, given when the skin is dry, or not accompanied by perspiration in the course of its operation, is very apt to occasion restlessness rather than sleep, and to produce a slight approach to delirium, by its influence on the brain: hence the acknowledged value of the combination which is universally known by the name of *Dover's powder*, as a safe and active diaphoretic and anodyne; it consists of opium combined with the diaphoretics, ipecacuanha, and sulphate of potash.

Guaiacum too has been much praised for its sudorific properties: Dr. Cullen considered it to be one of the most valuable of the stimulant diaphoretics, because it affords a matter which passes more entirely to the extreme vessels, and seems to stimulate the exhalents more in proportion than it does the heart and great arteries. By this means it is both a more safe and more effectual sudorific than those which stimulate the latter almost only: but acute rheumatism, or rheumatic fever, as it is called, is almost the only acute disease in which it can be recommended; and it is a disease in which the sweating is spontaneously profuse, and bears stimulants better than phlegmonous inflammations.

EMMENAGOGUES.—It has not been thought necessary to treat particularly of emmenagogues, as they are most of them general stimulants, and are so uncertain in their action that they can scarcely be viewed as stimulators of the uterus in particular.

A few other minor divisions, are also commonly made; as *ERRHINES*, which act on the mucous membrane of the nose, &c. but these consist of so very small a number of the pharmacopœal articles, that the mention of the substances themselves would be less tedious than their classification.

There are some articles in the *materia medica* which have been denominated *general stimulants*, from their effect on the system at large. They are little used at present in the practice of physic, but were strongly recommended by Brown, and consequently came into very general approbation during the time that author's theories were triumphant. They obtained this distinction partly because Brown was practically and individually acquainted with the healthy feelings they excited, but mostly because their use naturally grew out of his theory of debility and excitement before noticed.

Most of these substances appear to influence the body by means of the nervous system; for the rapidity with which their action is elicited cannot allow us to suppose their

their absorption; and local application to the circulating powers. This remark will likewise apply to many of the *SEDATIVES*; for, though these latter substances are for the most part absorbed and carried into the circulation; and thus operate immediately on the contractile powers of vessels, others exist of which the instantaneous action allows of no explanation except the supposition that they act on the nervous system through the medium of the stomach. It is obvious however, that, strictly speaking, all medicines acting on the nervous system should be comprehended in another division; but, as we before observed, the *modus operandi* of the respective articles in the *materia medica* is not sufficiently established to allow us to arrange them thus closely according to their effects.

We must observe, in this place, that many stimulants attended with discharges may indirectly produce sedative effects by removing plethora; as purgatives, diuretics, &c. The establishment of the opposite fact, viz. that some substances produce *directly* sedative effects, is a grand feature in the new Italian doctrine, and in which that doctrine is opposed to the Brunonian theory, which, as we have before shown, supposed that all medicines were stimulants, and only produced debility by promoting discharges. This opinion is not to be dismissed with quite so little ceremony as many parts of Brown's doctrines; for, though not admissible to its full extent, it is rational to conjecture that many substances do produce inaction of particular parts or organs by excessive stimulus on others, and thus that the class of direct sedatives is very limited indeed.

The most powerful sedative agent that we use in medicine is *Bleeding*. This operation is however scarcely capable of being arranged under any division; for, in the first place, if the system is gorged with blood, there can be no doubt that such a state may arise as will preclude the rapid action of the heart; and in this case, by diminishing the quantity of blood to be moved, the motive power remaining the same, the velocity will necessarily be increased. Thus, bleeding is a *stimulant*, on the other hand the rapidity of the heart's action is in certain states *reduced*, or rendered slower, by bleeding. Thus, it is a *sedative*. Again, syncope may be induced by bleeding; and, as this is dependent on diminished circulation through the brain, the operation here holds relation with the nervous sensibility. And further, the emptiness of the sanguineous system produces increased action in the *absorptive* powers.

According, then, to the various states of disease, this operation produces different effects, which are still further varied by the time and manner of its performance. With regard to the *time*, this has great influence on the curative results. Thus in inflammations of all kinds, it is necessary to bleed in the early stages, lest the continuance of that disease should terminate in change of structure, or at least in permanent dilatation of vessels. The manner of bleeding respects the abstraction of blood from small or large orifices, by frequently-repeated and small, or by large and sudden, evacuations. Topical bleeding is another mode of abstracting blood which is usefully employed in a great number of inflamed or excited parts, when previous exhaustion or other causes preclude general bleeding. With regard to the mode of performing venesection, arteriotomy, acupuncture, &c. see the article *SURGERY*.

The action of the absorptive system is increased with a view to the removal of many solid depositions, fluid secretions, and extraneous bodies, &c. Like the circulatory system, it may have its contractile phenomena increased or diminished. The first indication is attempted by mechanical pressure, and by certain medicines called stimulants; and it seems further increased in direct proportion to the exhausted state of the heart and arteries.

The second change, or the diminution of the activity of absorbents, is not found to attend with certainty the exhibition of particular drugs; but it is produced by various

morbid alterations, by heat, by the defect of mechanical pressure, and by the reduction of nervous sensibility.

To return however to the use of stimulants; *mechanical pressure* is an agent which exerts great and general influence over the absorbent system. In their course through the extremities of the body, the absorbents are compressed by the distension of the arteries, and during the contraction of muscles; within the cavities of the abdomen and thorax, they are subjected to the pressure of the ingesta, of the distended air-cells of the lungs, the movements of the diaphragm, and of the respiratory and abdominal muscles. Atmospheric pressure, as well as the weight of clothes, &c. is likewise to be taken into estimation. It is obvious that, as absorbents are furnished with valves which prevent the return of fluids towards their open mouths, *pressure* must accelerate the flow of their contents towards their venous terminations.

It must here be remarked, that the effect of long-continued pressure is probably two-fold; operating on the one hand to increase absorption, on the other to prevent deposition. Medicines which increase absorption operate for the most part by increasing contraction. But they may further, in some instances, render solid depositions less difficult of absorption, by producing solution of their constituent parts. That an empty state of the sanguineous system generally renders absorption more active, is a fact which we should be inclined to admit *a priori*; and it has received full confirmation from the well-known experiments of Majendie. It explains how purgatives, diuretics, &c. to which the older physicians attributed absorptive powers, may really bring on absorption, by causing depletion; and it further renders plain the circumstance, that a great number of medicines do not manifest their salutary operation except in exhausted depleted patients.

In our therapeutical indications, one of the most important is the imitation of nature in the production of opposite diseases. That disease in one part or structure of the body often ceases on its production in another, is, as we have before shown, a general law in pathology, subject however to many exceptions. It is in expectation of producing this salutary change that we use many of the most powerful stimulants. Thus blisters, mustard-cataplasm, embrocations, moxa, &c. are employed with the intention of *converting* diseases, i. e. of inducing action in a part not essential to life, for the purpose of removing it from one in which its dire effects are known and apparent. It is to be observed, however, that contra-irritation is a mean which can only be resorted to with advantage in certain degrees of inflammation; for it is known that, in inflammations of the highest magnitude, blisters, when applied before bleeding and evacuations have been premised, increase general irritation without alleviating topical disturbance; and this holds good in regard to most other substances of the same class.

As appendices to the usual and common remedies; we have to mention medical electricity, and the inhalation of gaseous fluids. Each of them has received an ephemeral and excessive degree of praise; and hence, like many of the surprising remedies perpetually arising, have fallen into undeserved contempt.

The cure of the most violent and inveterate diseases has been ascribed to *electricity*. All that now remains certain with regard to it is, that it is a powerful stimulant, and one which is the more strongly recommended, because it can be applied to a variety of parts, when the common methods of stimulation cannot be employed. The mildest modes of using electricity are those most in vogue at present, as its violent application is reprobated by the best practical writers. Its use in suspended animation, in chronic glandular enlargements, in atony of the organs of generation, are well known.

Animal electricity, or Galvanism, is in some respects similar to common electricity in its effects, and in others different; but, in a medical view, it has not answered the

expectations which at first were formed of its action. All those animals which possess excitability are affected by Galvanism as they would be affected by any other violent stimulus; and, if the excitable part be at all muscular, the fibres are vigorously contracted. This causes, in a living and conscious animal, a sensation not unlike an electric shock. The shock is more like that of common electricity, as the plates of the battery are smaller and more numerous. When the plates are of very large surface, a sort of vibratory motion is felt through the part, attended with a sensation of heat; and this, in a powerful battery, is felt so long as the connection is kept up. The best mode of taking the shock is first to moisten the hands, or the part where the effect is to be applied; grasp in each hand a piece of metal, such as two spoons, and touch each end of the battery with the other ends of the spoons at the same time. If it is intended to be applied to any other part, let two plates, of about two inches in diameter, be each attached to the wires coming from the battery, and let the plates be applied to some two parts: if the effect be too severe, let some inferior conductor be placed between the plate and the skin. Sir H. Davy found, that, when an animal substance was placed in the circuit of a galvanic battery, the different compounds contained in it were decomposed. This was more especially the case with the saline bodies contained in the animal fluids; the acids of the salts were found on the positive side of the battery, and the bases of the salts on the negative. Should it be ascertained that any redundancy of saline matter is the cause of disease, Galvanism might be employed with great success in separating those bodies from the system. See the article *ELECTRICITY*, vol. vi. p. 409, 445, & seq.

Pneumatic medicine, or the use of gases in the cure of various internal complaints, was very fashionable at the time chemistry formed one of the most ardent pursuits of the French nation, and when they attempted to explain the vital properties according to the laws of oxygen, &c. And in this country, Beddoes, Rollo, Cruikshank, and others, made many interesting experiments and trials on this subject. Of late its use has declined. See *OXYGEN*, vol. xviii. p. 167.

The diversified experiments of Sir H. Davy on the respiration of nitrous oxide and some other gases, so interestingly described in his scientific researches in 1800, in a great measure dissipated the general apprehensions of fatality resulting from the inhalation of compound gases, and satisfactorily demonstrated that many of the aerial fluids, before considered as destructive to vitality, might be breathed with perfect safety.

The following case, showing the beneficial effects of oxygen gas in restoring suspended animation, occurred in the year 1814, in the laboratory of the Dublin Society, and excited considerable interest. It was communicated by Samuel Whitter, esq. who made the experiment on himself. He introduces the account by observing that, when a mixture of carbonate of lime and zinc, or iron-filings, is exposed to an intense heat, the peculiar gaseous substance named carbonic oxide is disengaged, which has been stated to bear the same relation to carbonic acid that nitrous gas does to nitric acid. But agreeably to the striking observations of Mr. Higgins, professor of chemistry to the Dublin Society, in his work recently published, (wherein his claim to the discovery of the atomic system is unequivocally established,) it would appear that, in the combination of oxygen with different gases, it is the atom of oxygen only that is found multiplied, as is beautifully exemplified in all the metallic oxides, acids, and gases. An apparent anomaly has been noticed with respect to nitrous oxide, which the experiments of Mr. Higgins on the composition of nitrous gas tend to obviate, and sanction a comparison of the proportions of carbon and oxygen in carbonic oxide with those of azote and oxygen in nitrous oxide, rather than the atomic coincidence of carbonic oxide and nitrous

gas. Carbonic oxide was discovered and described by Mr. Cruikshank in 1801; it is highly combustible, burning with a fine blue flame, but it is utterly incapable of supporting animal life.

"Desirous of witnessing the progressive effects of carbonic oxide when freely respired, with a view to comparative analogy in reference to nitrous oxide, I was tempted a few days ago to inhale a portion of it as copiously as possible. The consequence had very nearly proved fatal to me. A considerable quantity of the gas having been carefully prepared by Mr. S. Wharmby, the very ingenious and able assistant to Mr. Professor Higgins, a series of experiments on its respiration were proposed. Mr. Wharmby first noticed some points of resemblance it bore to the nitrous oxide, particularly the singularly sweetish taste; and, having made two or three inspirations, was seized with a degree of convulsive tremor and giddiness that nearly overpowered sensibility. These violent effects were but transient, though considerable languor, head-ache, and debility, remained for many hours afterwards. Anxious to pursue the experiment still further, I next made three or four hearty inspirations of the gas, having first exhausted my lungs of common air as completely as possible. The effects were an inconceivably sudden deprivation of sense and volition. I fell supine and motionless on the floor, and continued in a state of total insensibility for nearly half an hour, apparently lifeless, pulsation being nearly extinct. Several medical gentlemen being present, various means were employed for my restoration, without success; when the introduction of oxygen gas by compression into the lungs was suggested, the effects of which may be fairly contrasted with those of the carbonic oxide. A very rapid return of animation ensued, though accompanied by convulsive agitations, excessive headache, and quick irregular pulsation, and, for some time after mental recovery, total blindness, extreme sickness, and vertigo, with alternations of heat and shivering cold, were painfully experienced. These unfavourable spasms were succeeded by an unconquerable propensity to sleep, which, as might be expected, was broken and feverish. An emetic of tartarized antimony finally removed these alarming symptoms, and the only unpleasant effects felt on the ensuing day were those occasioned by the fall.

"I very much regret that the confusion arising from the idea of my death, so disturbed the arrangement, that no accurate determination could afterwards be made, either of the quantity of gas respired, or the change it underwent in the process; and the experiment is rather too hazardous for repetition. Nevertheless, the extraordinary efficacy of oxygen gas in cases of suspended animation produced by carbonic acid, choke-damps, and other suffocating gases, is fairly deducible, and I conceive cannot be too forcibly recommended to the faculty, in such instances. I therefore sincerely hope that the results of this experiment may be of practical utility in those cases, which are so frequently occurring, and are often so awfully fatal; it being the decided opinion of the professional gentlemen present on this occasion, that the free use of the oxygen gas was solely instrumental in restoring me to life.

"Mr. Higgins himself had nearly once fallen a victim to a similar experiment with sulphuretted hydrogen, the effects of which, after recovering from a death-like insensibility, were painful and oppressive for many days."

This very short sketch may appear scarcely a sufficient account of *GENERAL PATHOLOGY* and *THERAPEUTICS*. The pathological reader will be immediately struck with the omission of all notice of Spasm, of Inflammation and its consequences, &c. But we have rather deemed it prudent to investigate these subjects under their separate heads, and have merely inserted these observations as being of too general a character to be reduced under any of our divisions. We therefore at once proceed to the

CLASSIFICATION OF DISEASES,

According to the system of Dr. MASON GOOD.

- Class I. CÆLIACA.** Diseases of the Digestive Function.
 Order 1. *Enterica.* Affecting the alimentary canal.
 2. *Splanchnica.* Affecting the collatitious viscera.
- Class II. PNEUMATICA.** Diseases of the Respiratory Function.
 Order 1. *Phonica.* Affecting the vocal avenues.
 2. *Pneumonica.* Affecting the lungs, their membranes, or motive power.
- Class III. HÆMATICA.** Diseases of the Sanguineous Function.
 Order 1. *Pyretica.* Fevers.
 2. *Phlogotica.* Inflammations.
 3. *Exanthematica.* Eruptive fevers.
 4. *Dysæthetica.* Cachexies.
- Class IV. NEUROTICA.** Diseases of the Nervous Function.
 Order 1. *Phrenica.* Affecting the intellect.
 2. *Æsthetica.* Affecting the sensation.
 3. *Cinetica.* Affecting the muscles.
 4. *Systatica.* Affecting several or all the sensorial powers simultaneously.
- Class V. GENETICA.** Diseases of the Sexual Function.
 Order 1. *Genotica.* Affecting the fluids.
 2. *Orgastica.* Affecting the orgasm.
 3. *Carpotica.* Affecting the impregnation.
- Class VI. ECCRITICA.** Diseases of the Excrement Function.
 Order 1. *Mesotica.* Affecting the parenchyma.
 2. *Catotica.* Affecting internal surfaces.
 3. *Acrotica.* Affecting the external surface.
- Class VII. TYCHICA.** Fortuitous Lesions or Deformities.
 Order 1. *Apalotica.* Affecting the soft parts.
 2. *Stereotica.* Affecting the hard parts.
 3. *Morphica.* Monstrosities of birth.

CLASS I. CÆLIACA, [from the Gr. *κοιλία*, the belly.]

DISEASES OF THE DIGESTIVE ORGANS.

THERE is no class of diseases which more imperiously demands the earnest and attentive consideration of the pathologist than this; and certainly there is no class of diseases which has of late received more attention from the medical world. We have before remarked on the connexion which the alimentary canal holds with the rest of the system; and on the media through which this connexion is supported. We have shown, that, if the sensorial powers be disturbed, the nervous productions which expand on the mucous membrane of the alimentary canal will have their office altered or suspended, and deficient secretion will be the result: that, on the other hand, every part of the muscular and nervous systems may be affected by the disordered state of the alimentary canal, since the impressions of the latter, conveyed to the brain, may affect, through it, all other parts. This reciprocal dependence and relation, then, we are quite willing to admit; but we have here to pause, and to consider a doctrine which is founded on this relation, but which we are unwilling to admit. It is the doctrine, that the primary cause of disease rests immediately in the stomach and bowels. Now it is very obvious, that, in tracing the origin of diseases, the order of succession observed by its symptoms is the only guide which we can adopt; and it requires little experience to prove that the succession of symptoms affords in many diseases direct contradiction to the doctrine above mentioned. For instance, the effect of studious and sedentary habits on the human frame, by inducing long and excessive action of the brain, is to exhaust sensibility; hence the due transmission of nervous power will be interrupted, and the secretory system will be deranged in various ways.

It is true, the stomach and bowels are generally the parts in which this derangement is principally made manifest; but this does not occur invariably. The secretion from many glands is sometimes disturbed, while the gastric and enteric fluids present no sensible change. Again; a blow on the head, though it frequently produces vomiting, yet that effect is not uniform. And again; in the effect of temperature, whether diminished or increased, we are able to trace the order of succession through the circulating to the nervous system, without meeting with any implication of the digestive function in disorder; and so on. That the alimentary canal is a medium through which morbid materia and impressions are conveyed to the rest of the system, we have before stated; yet such conveyance may not derange these organs, but may produce secondary effects on other structures; effects which may require remedies of a nature quite different from those calculated to relieve stomachic or intestinal derangements. Strong objections too are in force against another part of the same doctrine, viz. that of considering the stomach as a *centre of sympathy*; that is to say, when those terms are used to express a peculiar property of the stomach, a property different from what is observable in all mucous expansions. For assuredly the size or intensity of power in the nerves, will sufficiently account for the ready and general sympathy observed with regard to that organ, and other parts of the body, without resorting to this gratuitous hypothesis.

An argument is advanced in support of the origin of disease in the stomach, which we are inclined to regard with greater respect than any of the rest; namely, that the cure of many local and constitutional complaints is effected by means which procure copious secretion from the alimentary canal. We may observe, however, that, while we allow the fact, the hypothesis which is founded on it need not be admitted. The alimentary canal may be considered (in a greater or less degree in its various parts) as the *emunctory* of the sanguineous system. Thus even the bile, besides its use in the separation of chyle, is carried downwards in large quantities with the fæces. The bowels, too, pour large quantities of fluids, which vary in their smell, colour, and consistence; and, to a certain degree, without the health being affected. Hence secretion from these parts may act in various ways; either by removing certain states of plethora, or by eliciting from the blood noxious particles. In this way, emetics thrown into the blood, are separated from that fluid by the digesting secretions, and produce vomiting. We are aware that this seems to approach, in some degree, to the *humoral pathology*; but it is now become admitted, that our pathological theorists have perhaps too closely discarded the explanation of disease which this doctrine afforded. The proximate cause must, indeed, be looked for in the action of the solids; but the medium through which disease is propagated is, undoubtedly, very often the blood. The violent effect produced by the injection of a small quantity of air, or of other kinds of fluids, seems very direct confirmation of this opinion.

We must further remark, that the promulgators of these doctrines have overlooked the manner in which the derangements of the collatitious viscera alter the state of the stomach and bowels; an effect which takes place either by means of the application of morbid secretion, or by continuity of diseased action. With regard to the remote causes of disease in the digestive organs, the following are stated by Dr. Nicholls in his *Elements of Pathology*. "The process of digestion may be imperfectly performed, owing to a variety of causes; among which we may reckon,—Food of an improper quality, or in improper quantities; imperfect performance of the process of mastication, in which case the food will not be sufficiently mingled with saliva, nor will it be sufficiently broken down and divided; diminished secretion of saliva, or discharge of that fluid from the mouth; increased secretion of saliva; diseased states of the fluids which flow into

into the fauces; an altered state of the gastric or of the pancreatic juices; the presence of an increased or diminished quantity of these fluids; an altered state of the bile; an insufficient quantity of that fluid, whether arising from diminished secretion, or from some obstruction to its influx into the duodenum; the presence of too great a quantity of bile; the flow of too great a quantity of that fluid into the stomach; diseased condition of the stomach, whether consisting of simple plethora, of inflammation, diminished capacity, inordinate distension, thickening of its coats, partial rupture, ulceration, or displacement; disordered conditions of the cardiac or pyloric orifices; obstructed states of the intestines; hurried action of the bowels; increased secretion of enteric juice; diminished or depraved secretion of that fluid; collections of feces; worms; diminished sensibility of the nerves of the stomach, whence may ensue diminished secretion of gastric juice, and diminished action of the muscular fibres of that cavity; an interruption of the communication between the cerebral and the anti-cerebral extremities of those nerves; increased sensibility of the nerves of the stomach, whence may ensue, increased secretion of gastric fluid, pain referred to the stomach, and the production of vomiting; altered states of the cranial and spinal brain; deficiency of nervous power; long absence of sleep; an increase or a diminution of temperature, generally or locally; powerful sensations; passions, especially those of the depressing kind; powerful exertion of the faculties, &c. &c.

The first cause of disease, then, which we have to treat of, is the *food*. On this subject we propose to speak somewhat fully, because it regards one of the principal agents in therapeutics. The diseased actions of the alimentary canal, of the collatitious viscera, and lastly of the state of the nervous power, will constitute the next subjects of discussion.

That the natural food of man is equally the product of the animal and vegetable kingdom; that his digestive powers accommodate themselves, in a certain degree, to various kinds of sustenance; that, *ceteris paribus*, vegetables and water are capable of nourishing men of the most powerful muscular and sensorial developments; and that the opposite practice is attended with equally good effects; are truths so generally admitted and firmly founded on the historical records of every country, that they need form no part of our present discussion. On the other hand, that the partially-refined and half-civilized state in which we now live, our frequent meals, their quantity disproportioned to our exercise, and the various combinations which the culinary art affords us, may be said fully to counteract the useful and accommodating constitution with which we are endowed, are remarks so trite and familiar, that nothing but their importance, and the want of attention paid to them, excuses our repetition of them. The diet of man requires a certain adaptation to the varieties of climate; and here *instinct*, (or, as some call it, *nature*,) untutored by education and refinement, seems the best guide; for we find most savages preferring in hot climates the vegetable sustenance, in colder regions animal food: and this method of life experience proves to be most conducive to longevity and strength. Not that we are very favourable to the mode of life called *natural*, being fully persuaded that man's natural state is that of the highest civilization, since to that he is continually tending; and hence we should not have used this fact as an argument unless it had been supported by our own experience.

The subject of diet, in reference to our own climate, and in cases of disease, has occupied very general attention; but the difficulty with which this subject is attended, precludes us from presenting our readers with any philosophical view of it; for most writers have been occupied with detailing the good or bad effects of particular substances, founded, it is to be feared, in too many instances, on partial views or individual feelings. Thus we are

continually hearing, even from medical men, that such a thing is easy of digestion, and another difficult, and so on; while our indiscriminate application of these rules soon teaches their fallacy: it soon shows that what agrees with one person produces violent effects on another, and that different states of disorder in the stomach require regimen of very opposite powers.

In the natural and healthy state of the body, we must regard in some measure the Hippocratic advice; not to carry our dietetic arrangements to a too great degree of refinement, because any occasional irregularity will produce the more unpleasant effects; but at any rate the state of health is best consulted by partaking of few articles at a meal. The proportion of exercise, too, becomes a matter of consideration; but instinct points out the true path; for, as less exercise is taken, less appetite is experienced. The habit of meeting our friends at meals, the variety of provisions which kindness and hospitality present to and urge on us, are perhaps the most frequent causes why these instinctive calls are so seldom attended to. But, though to those who take frequent exercise, this relaxation and enjoyment is productive of scarcely any inconvenience, yet it is severely felt by the sedentary and the studious; and hence to the latter are rules and regulations more generally addressed.

It has been held of late years that *drinking* at meals is an unnecessary, and indeed improper, custom. This opinion receives support from observing the habits of animals, few of which drink while digestion is going on in the stomach. In Greece, this custom of dry feeding is said to prevail; and Xenophon says, that the ancients did not drink till the repast was finished. We have not sufficient proofs to enable us to engage in proving or disproving this dogma; but we may observe, that its application should of course be somewhat regulated by habit and inclination, and by the nature of the food and the state of the atmosphere. In the *Dictionnaire des Sciences Medicales*, the sentiments of Hallé and Nyssen on this subject are thus expressed: "La quantité de boisson à prendre pendant le repas doit être en proportion d'autant plus grande ou moindre, que les alimens eux-mêmes sont plus secs ou plus humides; qu'ils se laissent plus ou moins aisément pénétrer par les liquides salivaires et gastriques; qu'ils forment, par leur viscosité, une masse plus ou moins tenace; qu'ils ont plus ou moins la propriété de distendre l'estomac et d'y séjourner un certain temps. Les boissons doivent aussi être prises en quantité plus ou moins grande, suivant les constitutions individuelles qui, en raison de leur degré de sécheresse ou d'humidité, présentent des différences très-grandes relativement à la quantité et au degré de liquidité des sucs salivaires et gastriques. Les personnes sèches et bilieuses, dont les organes sont très-irritables et dont la chaleur propre est plus ardente, dont les évacuations intestinales sont plus habituellement dures et sèches, qui sont ordinairement constipées, ont besoin d'une plus grande quantité de liquides aqueux et frais. La proportion des boissons aux alimens doit enfin varier selon l'influence des saisons et de l'état de l'atmosphère. On peut cependant poser en principe, 1^o, qu'une quantité de boisson qui excède trop la mesure des besoins naturels, énerve les digestions, et favorise les altérations spontanées des alimens qui séjournent dans l'estomac, surtout quand ce viscère a peu d'activité; 2^o, qu'une quantité de boisson insuffisante prolonge le séjour des alimens dans la cavité gastrique, et entretient le sentiment de plénitude qui en est la suite. Mais il faut surtout, à cet égard, se mettre en garde contre l'habitude qui outre-passe plus souvent la mesure qu'elle ne reste en-deçà; connaître, par son expérience, quelle quantité de liquide est la plus favorable; savoir que la soif que donne l'usage des substances sèches, en épuisant sur-le-champ les organes salivaires, n'est souvent que momentanée, et se dissipe en peu d'instans par le renouvellement de la salive. Ces observations sont importantes pour ceux dont les digestions sont lentes, imparfaites;



imparfaites; pour ceux qui sont sujets aux aigreurs, et chez qui les fonctions de l'estomac sont aisément troublées par la superfluité des liquides." (Tom. iii. p. 222.) It is supposed too, that the rapid drinking of fluid is less salubrious than gradually swallowing it, as the former practice tends to produce *dilatation* of the stomach; but of this diffention we have no very unequivocal proof.

Of the bad effects of too great a quantity of food we have frequent instances, both in sudden and chronic affections; and we have every reason to believe that mankind offend in general by taking *too much* food rather than by taking that of an improper quality. A neglect of attention to the *quantity* of the food, proportioned to the necessity of each individual, is sooner or later followed by the most serious consequences. To the strong and robust inflammatory diseases happen, and all such as proceed from plenitude, as the gout, apoplexy, &c. To the more tender and delicate, it is the parent of a numerous progeny of distempers, affecting both body and mind; there is scarcely a malady that can be named which is not increased by excess of food, till the disease at length bids defiance even to temperance itself, and all prescription. The *how much*, indeed, must be determined by every individual; but those who are happy enough to abstain at the first sensation of satiety, have made great progress in the art of maintaining such a command of appetite, as, under most chronic indispositions, is one of the great aids of recovery; and, in health, is one of the surest preservatives against them.

To the delicate and valetudinary the consideration of the *quantity* of the food is of still more importance. They do not rise from rich and varied repasts with the same freedom from uneasy sensations as the robust; they are affected with uneasiness, some in one way, some in another, by the unnatural load. And we often hear them complaining of the ill effects of this or of that particular kind of diet, when, perhaps, their sufferings arise from the quantity of all, rather than from the disagreement of any. What renders an attention to the quantity of food in invalids still more necessary, is, that they are often subject to a false appetite; to a craving that does not arise from the demands of health, but from the morbid condition of the juices in the stomach, which prompts them to eat more, and more frequently, than nature requires. Hence it happens that such people are often disposed to take in much more than can be digested, to devour their food rather than eat it; by which means their sufferings are increased, disease gains ground, defeats every purpose of the physician, and leads them into some permanent and incurable malady.

The *time* of eating is another grand consideration. It is well ascertained that a periodical action exists in the different secreting parts of the body; and that the stomach acts with different degrees of energy at different times, and according to fixed laws, can admit of no dispute; for not only does its being only required to act at certain times indicate this, but the hunger we feel at the hour of repast, and its absence after a short time if not satisfied, afford further corroboration of it. The customs of various countries changes too in respect to time; and, provided the same periods are observed each day, this does not seem to influence our health in a great degree. Mr. Abernethy states the proper interval between each meal at six hours, which reduces the meals to three in a day; and this seems to be the most judicious arrangement which can be made, and which has indeed been generally adopted among the affluent classes in this country, supper being for the most part discarded; or perhaps we should rather say, that the meal of dinner has been discarded, and an early supper substituted. But two very moderate meals, at a suitable distance of time, would doubtless be digested with much more ease than one full meal, when the stomach has been debilitated by long fasting, and has suffered fatigue, together

with the body at large, from the exertions of a long day. So that, as Dr. Fothergill has observed, "when people assure us they eat no suppers, from observation I am led to suspect, that it would be better for them if they did, than to oppress nature with a cumbrous load that may be much more detrimental." This, indeed, seems to be pretty well understood with respect to invalids and convalescents, who are generally supplied with small light meals at proper intervals, rather than have all their diet crowded into one late dinner.

We shall just insert a general view of the more common substances used at meals, for the purpose of consulting the health of those persons who, though not ill, find the gastric functions easily disturbed. The general breakfast of people, from the highest to the lowest, is tea, coffee, or chocolate. There are, of course, many exceptions; some for one reason, some for others, making choice of other substitutes, as their experience or opinions guide them. To these articles, bread of some kind, with more or less butter and sugar, is commonly joined to make up the meal. From many incontestible proofs that butter in considerable quantities is injurious to constitutions not strong, it is sparingly used in many families. It is found by many to be very difficult of digestion, especially when toasted before the fire, or fried, as well as in fauces. Many people, apparently robust, and whose organs of digestion are strong, often find themselves much disordered by large quantities of butter. Nothing more speedily and effectually gives the sick head-ache, and sometimes within a very few hours. After breakfast, if much toast and butter has been used, it begins with a singular kind of glimmering in the sight, objects swiftly changing their apparent position; giddiness then comes on, head-ache, and sickness. An emetic, and warm water, soon wash off the offending matter, and remove these disorders. These are circumstances which very often happen to people who are inattentive to the quantity of butter they eat at breakfast. A moderate quantity of fresh butter, with bread exposed as little to the fire as possible, or not at all, appears to be wholesome, and is capable of becoming, with the other aliments, as soft and inoffensive chyle, perhaps, as any part of our diet.

The same thing may perhaps be said of coffee as of tea; the heat, the strength, and the quantity, make it unwholesome or otherwise. There are nations who almost live upon coffee, as others do on tea; and among neither are any diseases prevalent that can justly be ascribed to these ingredients in the common course of living. There are, however, individuals of peculiar constitution, in whom the Indian tea excites various unpleasant symptoms, as head-ache, restlessness, &c. and several British plants have been recommended as substitutes, and used with advantage. But Dr. Reid, in his Essay on Hypochondriasis, says, "I am inclined to think that there are many cases in which a taste for tea ought to be encouraged rather than condemned. This taste has a tendency to preclude the more prevalent, and after all more mischievous, propensity for vinous stimulation. Many persons, distinguished for their longevity, have been known to indulge habitually in the use of tea; which we may account for, not from its being in itself a wholesome beverage, but from a fondness for it generally implying a distaste for potations of a much more decidedly pernicious nature. Tea will produce, in some very irritable frames, an artificial state resembling intoxication; but it is a cloudless inebriety. Tea removes the film from an eye that has been obscured by a gross and stupifying intemperance, and tends to improve a susceptibility to the true relish of social and intellectual enjoyment." It should be recollected, however, that every vegetable infusion of this sort, is but warm water, rendered more palatable by the aroma of the herbs so infused; and that there is little or no nutriment conveyed by them to the body, except what is contained in the small portion of milk and sugar added to them. These liquors, then, should be considered

dered as the mere beverage, by which the solid portion of the breakfast, the bread, &c. is to be diluted, and its digestion assisted; and it would be advisable for the delicate and valetudinary to curtail the liquid and augment the solid part of a meal, which is to support them during the exertions of the day, rather than to fill the stomach with a diluent and narcotic liquid, at once failing to nourish the body, and depressing the action of the stomach, where little is taken besides.

But the effects of improper conduct in respect to those things which now constitute our breakfasts are of little consequence, compared to those which arise from the well-covered table at *dinner*. The indulgences of breakfast supply but very few materials for destruction; but the repeated excesses at dinner are serious affairs. And although, as we have before stated, the quantity of food is the point to be principally regarded; yet the quality is by no means a matter of indifference to the valetudinary. The principal admonition which the late Dr. Herberden deemed it necessary to impress on the minds of delicate persons and invalids, was to avoid all those artificial stimulants of the appetite, which excite the desire for food beyond the simple call of nature, and therefore beyond the natural powers of the stomach to digest. Such are all made dishes, and condiments of the more poignant qualities; nor is variety of dishes less pernicious, upon the same principle. It is probable that, in their nature, aromatic vegetable condiments, or spices, are less pernicious to the organs of digestion, than the various modifications of alcohol, or spirits; but the mischief which they occasion indirectly, by leading to excess, is unbounded. This excess is still more pernicious, now that the hour of dinner is postponed to the evening; for the stomach is enfeebled by the long absence of stimulus, and by sympathizing in the fatigue of the body, so that its power of digesting a copious and heterogeneous mass is greatly diminished. It is loaded, and distended, and oppressed; and the body, in its turn, suffers with the stomach. Hence, we see the flush of the countenance succeeding to a late and copious dinner; the indisposition to any exertion, mental and corporeal; the general oppression of the animal powers; the general sensation of heat; the hurried pulse; dry or clammy tongue; and other symptoms of feverishness. It is most obvious, that the daily, or even frequent, repetition of such a disorder, (for it is, in fact, a morbid condition which is thus produced,) cannot be suffered, without injury to the constitution.

Some of the common articles of diet require a little attention. Bread, the staff of life, is not the most easy of digestion; if taken in considerable quantity, very strong organs are requisite to convert it into nutriment, and more especially when it is new, for then it is of a glutinous and heavy nature, and extremely difficult of solution. Cases have been recorded, indeed, in which an immoderate quantity of fresh-baked bread proved the cause of death. (See London Med. Journal, vol. i. p. 333.) In weak stomachs a large proportion of stale bread is indigestible; it turns sour, produces the heart-burn, flatulencies, and interrupts the perfect concoction of every thing else. On this principle, the necessity of paying much attention to this capital article of diet ought to be inculcated on valetudinarians in general; never to abstain from it wholly, but to use it with moderation; to consider it as one of those things which, sparingly used, is extremely necessary and beneficial; if otherwise, the fruitful source of many complaints, which are little suspected from this cause.

In this country, animal food, of one kind or another, constitutes the chief part of our nourishment. That there are some kinds of more easy, some of harder, digestion, is well known to every one; so that it is unnecessary here to particularize them. The young of animals is generally considered as more easily soluble than the old; but in stomachs disposed to acidity, this does not appear

to be the case. Animal food is rendered more digestible, by approaching to a state of beginning putrefaction; hence, the flesh of animals recently killed is less easy of digestion than that which has been kept for some time; and hence, also, the flesh of an animal which has been hunted, or has used any violent exertions before death, is more tender and wholesome than one which has been in confinement; for, after such exertions, the muscular or fleshy parts are disposed to go speedily into a state of putrefaction. It must not be forgotten, however, that this remark is applicable only to cases where the stomach is quite healthy; there being every reason to believe, that, if any degree of gastritis is excited, putrifying meat would prove violently stimulating.

In respect to vegetables, the best rule is to use those which best agree with each particular constitution. All the vegetables brought to table, which have been rendered soft by boiling, are readily digestible. The raw vegetables, used in salad, &c. are somewhat less so; but, unless where the stomach is much disposed to acedency, they are generally wholesome. "On this head," says Dr. Fothergill, "I have only one short caution to give. Those who think it necessary to pay any attention to their health at table, should take care that the quantity of bread, and of meat, and of puddings, and of greens, should not compose each of them a meal, as if some were only thrown in to make weight; but carefully to observe, that the sum of all together do not exceed due bounds, or encroach upon the first feelings of satiety."

With respect to fruit, it is doubtless wholesome in its ripe state; especially if taken in the forenoon, or instead of a meal. But, like other agreeable and nutritious substances, it must prove injurious, when added to the load of the stomach, after a plentiful meal.

Much might be said about the comparative advantages of the different kinds of liquor used at table. The great object of drink at our meals is to dilute the aliment taken into the stomach, and thus render it more capable of digestion. It is too often, however, used for a very different purpose; namely, to stimulate an imperfect appetite, and to enable the stomach to receive with relish what, in its unstimulated state, it would loathe and reject. Inasmuch, then, as drink is conducive to excess in eating, it is pernicious to take large and frequent draughts of any liquid during a meal. Dr. Fothergill has laid down a few simple rules in respect to drink. "The less quantity of fermented liquors we accustom ourselves to the better. Abstain from spirits of every kind, however diluted, as much as may be. Where mild well-brewed beer agrees, to keep to it as a beverage. Where water does not disagree, to value the privilege, and continue it."

By those who recommended drinking not *at*, but *after*, meals, the interval usually fixed upon is about two or three hours; and we are moreover recommended by Mr. Abernethy to rest for a considerable time after a meal, some experiments made on dogs having proved that the digestion of food in the stomach takes place most readily when the muscular system is in a state of inaction. This has been objected to, however, by a Mr. Hare; but, as that gentleman has not tried the experiment over again, his objections are not valid. It seems to us, that the natural disinclination to move which we all feel after partaking of food, and the frequent eructations, &c. which exercise produces when used during the same period, sufficiently prove the correctness of Mr. Abernethy's opinions on this subject, without any appeal to experiment. The day, then, according to the view taken by the distinguished gentleman just mentioned, will be thus divided: The early part of the morning is to be devoted to exercise. Half an hour's rest being premised, breakfast is to be procured. Rest again becomes necessary for two or three hours. Exercise again should then be had recourse to, until within half an hour before dinner, the latter period being as before devoted to quiescence.

cence. The same round of employments to be continued until the third meal of the day, which is supposed to constitute the last. According to this arrangement, the intervals between breakfast and dinner, and between dinner and supper, (or tea,) will be each six hours. See Abernethy on the Constitutional Origin of Local Diseases.

We have to give our small tribute of encomium to this plan of life, being well assured by experience of its salutary and beneficial operation. It is very remarkable, but no less satisfactory, to find, that the habits which experience has proved to be most conducive to health, coincide completely with the practice founded on reasoning; the trainers of our pugilists having long submitted their pupils to rules very similar to the dietetic ones just mentioned, and truly we can scarcely find any-where else such strong proofs of their propriety. A bloated drunken fellow, whose hours are perpetually occupied with debauch, and whose frame evidently betrays the baneful effects of intemperance, subjected to three months *training*, that is, to the influence of regular and powerful exercise, salubrious air, wholesome and sparing supplies of food, restricted in drink to water, and perhaps a few glasses of wine, becomes developed in his muscular structure to an astonishing size: he affords a study for the painter which almost equals the boasted statues of Italy; his skin acquires a fairness which might add beauty to our fashionable females; and indeed the whole appearance of the man is changed "*quanto ab illo Heclore.*"

In recommending, however, the above, we are aware, that they require much modification in their application to morbid states, because the digestive functions are influenced in various and in opposite modes, according to sex, age, habits of body, and habits of life.

Though the results of chemical analysis, in regard to the nutritious parts of our diet, do not furnish much practical information, it may be proper to advert to them with a view to future generalization. The food of man consists of several unchangeable principles, foreign to the business of nutrition, combined with others in which the nutritive power resides. The latter varies in its characters and proportions. Mucilage, gelatine, gluten, albumen, fecula, fibrine, sugar, and the base of oxalic acid, are the general modifications under which the nutritive substance presents itself. Each of these varies according to the nature of the heterogeneous principles with which it is associated.

In the numerous plants which do actually, or which might, serve for food, mucilage sometimes exists alone, or mingled with extractive, colouring, acrid, bitter, or odorous matters; or diluted with various proportions of water. It is often united with oxalic acid and sugar; sometimes with a very active volatile principle of a very acrid taste and penetrating odour. Lastly, it furnishes the matter of gums and vegetable jellies; in one of which the nutritive principle is imperfectly formed, while in the other it is brought into a very small volume. Gum tragacanth, feneca, cherry-gum, &c. are examples of this matter. It is no-where cultivated, nor even collected, for food; so that we might be apt to consider it as incapable of affording any nourishment, if it were not known that the caravans crossing the sandy deserts of Africa, over which they have brought gum feneca, have in many instances lost their way, exhausted their provisions, and been obliged to live on this gum for many weeks, having nothing else but water alone, and a very sparing supply of that. Mucilage is also contained in most vegetable juices, and in the stems and other parts of plants.

In the flesh of animals which we use for food, the gelatine is united with fibrous, extractive, saline, and earthy, particles. It is mingled with fat, and with serous or lymphatic fluids. It is found in various degrees of tenacity and consistence; in which it determines all the sensible differences of the white organs, which contain an abundance of gelatine. In a word, it forms the animal

jellies, which constitute a mild, light, and wholesome, food.

Vegetable gluten is always found combined with other substances soluble in water, without which it could not be dissolved in, and blended with, our juices. It abounds in the gramina, where it is united with fecula, extractive principle, colouring matter, mucilage, and an earthy substance. The albumen of animal matters resembles, in many points, the vegetable gluten. The whole white, and a great part of the yolk, of an egg, are a composition of albumen, and colouring and oily principles. The caseous matter of milk is a modification of albumen: which, together with the principles of butter and sugar, composes that soft emulsive liquor, so favourable to the constitution of infancy. The most nutritive plants are those whose base and prevailing principle is the amylaceous fecula. It exists sometimes completely pure, and free from extraneous admixture; sometimes united with mucilage, oils, or gluten; sometimes with sugar, extractive or colouring matters; sometimes with earthy, acid, or saline, principles; and very rarely with noxious or poisonous matters. Wheat is composed of gelatinous matter and fecula. These two principles, acted on by the fermentative process, form bread, the nutritive qualities of which are not surpassed by any vegetable substance. It is so much the more proper for animalization, inasmuch as the fermentation has already brought it into a state fit for decomposition.

The principle now alluded to, which constitutes the farinaceous matter of vegetables, is contained, perhaps, in the largest proportion, in rice; and wheat is the next to this. Other grains are only substitutes for these; except maize, which is easily cultivated, and contains much farinaceous matter. The legumina contain much of the same principle; as also nuts, and the seeds of the cucurbitaceæ and poppy, although not used for food. It exists, probably, in the stems of some plants, as the palmæ, from the expressed juice of which *sago* is formed; in the roots of many classes, as the potatoe, yam, and pignut, in which it is very abundant.

The fibrine of the muscles and blood partakes of the properties of gluten and fecula: it admits of a very speedy assimilation, and exerts a more marked, rapid, and extensive, influence on the strength in general, than any other food; yet it resists the digestive powers, when, deprived of gelatine or dried, it is reduced to a hard coriaceous substance. It forms a close and firm, but delicate and divisible, texture, in the muscles of healthy animals, which form a light and succulent kind of food. An extractive colouring matter generally adheres to the fibrous substance; and the differences in its quantity or quality probably influence the appearance and nutritive powers of our various animal foods.

Sugar, and the oxalic base, which can hardly be separated from it, are produced by both kingdoms. The vegetable acids are convertible into a sugary substance, which bestows on them whatever nutritive powers they may possess. Other acids, beside the oxalic, are unfit for nourishment; and they only acquire that property by an admixture of the latter or of sugar or mucilage. The same principles exist in various proportions in the fruits employed for food. The respective quantities of mucilage, sugar, acid, and water, indicate how far they are susceptible of digestion, and, consequently, nourishing. Sugar exists in most vegetables; but is most abundant in the sugar-cane, from which alone it is furnished to any great amount, in the sugar-maple, and the beet-root. Excepting what is supplied from the vegetables above mentioned, and which hardly forms the food of any person, its sources for the purposes of food are not very general, being confined principally to dates, grapes, figs, and some other fruits. Fruits indeed, in general, contain sugar; many of them in sufficient quantity to afford considerable nourishment. But the three species just enumerated are those

those on which many individuals live almost entirely; the sugar being nearly their only nourishment: this observation holds with regard to dates in some of the African tribes, grapes in some parts of Portugal and Spain, and figs in Greece and the Grecian islands.

Expressed oils, found in vegetables, are also capable of being digested; the seeds containing them, and especially nuts, are in many instances the principal food of the inhabitants of a country, as cocoa-nuts in America and the East. These seeds indeed contain farinaceous matter, but in too small proportion to afford nourishment of itself. The oily animal fluids also afford nourishment; the most common source of these is the fat of meat and butter, but some of the Russians and the Greenlanders drink with avidity spermaceti and train oil.

As rules for diet and exercise are attended to chiefly by valetudinarians and the aged, we shall notice a publication which appeared in the year 1758, called "The Old Man's Guide to Health and longer Life." The author very properly divides his old men into two regiments, the thin and the gross, to each of which he prescribes a different regimen; the following rule, however, being common to both; "Use no butter at breakfast, if you wish to preserve an appetite for dinner; and, in proportion as you use more or less (butter), so will your feelings be." The author goes on; "The gross old man should take his exercise chiefly in the forenoon, with as little nourishment as possible; the thin old man should have a light breakfast, but take his exercise after dinner. The thin old man cannot sleep in the morning; the gross man cannot rise early, unless he sleeps in the day-time."

The frequent notices in newspapers of individual instances of extreme old age, as well living as dead, have led us to think that much useful information might be elicited from a narration of the most essential circumstances and habits of life of those who have thus so greatly exceeded the ordinary limits of human existence; such particulars, for instance, as quantity and quality of food; degrees of abstinence and indulgence in animal or intellectual enjoyments; of exercise and labour, or of sedentary inactivity; and lastly, the proportions of health and sickness. Now, although great uncertainty may arise in ascertaining the accurate truth of many facts, through the traditionary nature of the sources from whence they must be collected, yet, among those who furnish editors of newspapers or other publications with cases of long life, enough might be obtained, by any one interested in the subject, to throw great light on the at-present disputed question of *relative causes*, and might tend to establish, at least with greater probability than yet exists, the quantum of influence which the moral and habitual operations and regulations of the animal economy possess over the peculiar idiosyncrasy of that economy itself. We are not, certainly, so sanguine as to expect from any combination of facts, however numerous and well attested, that mankind will ever regain the art of living to Methuselah's age; no, certainly not; those were the days of miracle, long since found useless: but if, from a comparison of a multiplicity of various and opposing truths, some certain general principles could be discovered, on which the preservation of human life, and, what is still infinitely of more importance than mere length of life, its healthful security from the afflictions of bodily disease and moral suffering, could be proved to depend; then, instead of merely exciting a momentary feeling of wonder, like the present barren statement of the years an individual has held his being, such a concentration of prominent circumstances attendant on lengthened existence would become the precursor of a new era, both in the science of medicine and in that of the happiness and well-being of universal man. We are aware that the relater of any instance of longevity could do little more than collect the circumstances connected with it: to combine and deduce must be the work of a mind in full possession of the

aggregate mass of particulars, and qualified to draw inferences from them.

After diet and exercise, the remaining numerous causes of disease in the digestive organs resolve themselves for the most part into the effects of sympathy with or dependance on the action of various other parts. The cerebral structure forms one of the leading and most important. It were of little importance to speak here of the numerous complaints incidental to men of studious habits. It must be expected that, seeing that muscular contraction acts a very important part in the human frame, and that the force of that action is increased (within certain limits) in proportion to its exercise, therefore indolence must be productive of hindrance to the due performance of vascular and absorbent functions of the body. It is further to be considered that nervous influence is necessary to secretion; and on secretion the hunger, digestion, &c. may be said to depend. Now, it is well known that the intense action of the brain in performing mental phenomena do essentially and sometimes completely disturb the transmission of nervous influence. Of this we have the most frequent examples. Every one knows how often enthusiasts in science are led to forget the precise hours of refreshment, and how much the man of literature in this respect differs from the *bon vivant*. It would seem (to use a figurative expression) that the brain was so absorbed in the sublimity of thought, that it had no time to perform its corporeal and coarser functions. But of course these functions are requisite in the highest degree, and the non-performance of them subjects the studious man to difficult and uneasy digestion; and should therefore be encouraged by regular habits and by muscular action.

On the other hand, the want of due action in the ratiocinative powers seems to allow increased nervous supply to the secreting organs. Thus many mentally-indolent persons have voracious appetites; and indeed we cannot help thinking that the amazing digesting powers manifested by our peasantry (in the generality of whom we see corresponding inactivity of mind) depends in a great measure on the unexercised state of the intellect. This proposition it would be perhaps difficult to demonstrate, because the facts under consideration may be explained on other grounds. It is worthy of remark, however, that we see none of this excessive desire for food manifested by men who, engaged in occupations equally laborious and healthy as the ploughman's, are called upon moreover by necessity or stimulated by education to the exertion of their minds.

It has been asserted more than once, that abstinence fits the mind for increased exertion. This notion can only be admitted with some restriction. To a great degree it is undoubtedly true, because, according to our present methods of life, it may be reckoned that the generality of persons are inclined to a plethoric state of the vessels of the head, and hence a low kind of living may, to a certain point, tend to revivify the exhausted brain. This beneficial result may arise too from tranquillity being restored to the extensive nervous expansions of an irritated stomach, which propagated their morbid condition to the brain; or, again, it may prevent for a time the supply of noxious materia to the vascular system of the brain. In the latter mode especially it is probable its effect is very frequent; for there is strong ground to conjecture that many mental disorders arise from the last cause. The effect which the deranged liver produces on the brain can only be accounted for on the same supposition; i.e. that of absorption and local application.

This agency of the liver on the head is corroborated by the respected testimony of Dr. James Johnson. See his work "On the Diseases of Tropical Climates," p. 189. He says, speaking of hepatic derangements, "The whole of the literary world, from the poet in his garret to the learned president in his hall, feel more or less of its effects."

fects. This deficiency in the secretion of bile, the consequence of mental exertion and corporeal inactivity, is evidently the *morbus eruditorum*,^a which sicklies o'er, with the pale cast of thought, the countenances of the studious, who waste their hours and their health by the midnight lamp! To them I need not describe the malady; they are too familiar with its various symptoms. But few of them are aware how far material causes can influence intellectual ideas. If I wish to exert, on any particular occasion, the whole force of my memory, imagination, perception, and judgment, I know, from repeated experience, that by previously emulging the liver and its ducts, and carrying off all bilious colluvies from the alimentary canal, by mercurial purgatives, which also excite a brisker secretion in the chylipoietic viscera, I am thereby enabled to avail myself of those faculties above mentioned, to an infinitely greater extent than I otherwise could. This is no theoretical speculation; it is a practical fact. It may help to explain the great inequality which we often observe in the brightest effusions of fancy; and shew us why even the immortal Homer sometimes nods."

The stomach is influenced by sympathy with other parts to a very great degree: 1stly, by the state of the skin; 2dly, and most materially, by the state of the lungs; and, lastly, by the state of all the collatitious viscera. Among these the most striking is the liver. It is scarcely fair to infer, however, that affections of the alimentary canal are produced by the collatitious viscera through the medium of the nervous system; since the unnatural secretions poured into it by them may produce all the disturbances we have occasion to witness. From the nature of this structure it is very evident, that each of its secondary processes is dependant on the due performance of the primary ones. Thus the saliva cannot mix with the food in a proper manner until the teeth have performed their office; the stomach cannot act if any impediment exists in the pharynx; nutrition cannot take place if the action of the stomach is suspended or materially depraved; and so on. Hence, then, the best mode of considering these diseases is according to their anatomical relation to each other; so that diseases of the teeth, saliva, pharynx, and so on, will form the order of our arrangement.

Before entering on them, however, we have a few remarks to make on some grand divisions in regard to the pathology of the mucous membrane of the stomach and bowels. To these derangements the sweeping term *indigestion* has by most writers been applied, with a view of comprehending the whole of this varying and numerous class. We are indebted to the continental writers for some very material elucidations of the nature of gastric affections. We find, in the work of Broussais especially, a most able exposition of the chronic inflammation of the stomach; a disease which had been greatly overlooked, and perhaps confounded with those inexplicable modes of action which have been accounted for on the unsatisfactory assumptions of *want of tone, laxity, weakness, or delicacy, of stomach, &c.* It is to be doubted if the use of these vague expressions has not induced many to adopt the stimulating, the purgative, or the stomachic, plan, to the manifest injury of their patients, when cooling and un-irritating measures were more appropriate. Gastritis, in the common signification, is certainly a disease of rare occurrence, and is as dangerous as rare; but this applies only to its most acute and violent form. Broussais has established the fact, by repeated dissection and observation, that this inflammation exists in various forms; that it is capable of going on to produce disorganization of the mucous expansion of the alimentary canal; that, on the other hand, it may produce symptoms and effects resembling acute fevers. He has traced the gradual shades and gradations, from the violent and acute form of inflammation to which old nosologists have applied the word *gastritis*, down to those troublesome though slight ap-

pearances which we have been accustomed to call *indigestion*. The notion of a slight modification of gastritis had indeed been entertained by Cullen; for he speaks of erythematic inflammation of the stomach; but it does not appear that this idea was ever followed up by him, or applied with any advantage to practice. With respect to the existence of this affection, we should, *a priori*, conclude that inflammation of the stomach would be a disease of frequent occurrence, because that organ is often opposed to substances of a highly-irritating nature, because its vascular system is much developed, and because it possesses a high degree of sensibility. Indeed we are inclined to think that many disturbances in the alimentary canal may be traced to inflammation in the first instance, and that the state of *atony* of the digestive apparatus is often the result of that previous over-action. To generalise thus would, however, in the present state of our knowledge, be premature; for we should know precisely in what proportions the absorbent, the vascular, or the nervous, system, of this digestive tube, are implicated in disease, ere we could state the sweeping conclusion, that inflammation is the general forerunner of gastric disturbance. Moreover many cases will occur to the practical physician in which no inflammatory action was in the least degree apparent.

Perhaps then the most appropriate arrangement will be into, 1. Chronic inflammation of the alimentary canal; 2. into disturbed function of that canal arising from unknown modes of action; and, lastly, into sympathetic propagated disease arising from, or communicated to, other parts. It is with the second only that we have now to do. The first, as being connected with general inflammation will be treated of under *gastritis*; and the third will receive frequent illustration in almost every disease in our catalogue. It is however of the utmost importance that the two states of atony and excitement should be well discriminated; and on that account we cannot avoid giving in this place a short diagnosis of the two kinds of disease.

Chronic gastritis differs from the simple functional disturbance of the stomach, in that a sense of pain (of various kinds however) is almost continually present, and that the sensorial functions and the pulmonary system are more powerfully affected: the skin exhibits more of heat; in the early stages, the circulation is somewhat affected; thirst and evening exacerbations are frequently present; and vomiting is seldom absent. Moreover the sympathetic irritations that arise from the irritation of the stomach, present more of an inflammatory character. It will easily be seen, that every one of these symptoms is equally present in various kinds of simple indigestion; but the connexion of the whole must be taken into consideration. The excellent effects of cool drinks, &c. in allaying the disease, seems to present another discriminating point, since that effect is seldom experienced in simple indigestion.

The same cautions are practically necessary in treating the mere functional disturbances of the lower parts of the alimentary canal, and chronic enteritis, colonitis, &c. but, as this is not the place to enter into discussions on inflammation, we merely point out the fact that discrimination is necessary in those diseases. The functional disturbances of the alimentary canal are so numerous, and so anomalous in their character, that they almost baffle description, and we shall meet with no order of diseases in which our nosological arrangement is more imperfect than in this; for not only do many of the individual diseases run into each other, but some of the species, we are inclined to think, are merely symptomatic. Cullen arranged these complaints in a very general way. Mr. Abernethy too, though he has written some of the best histories of them which we have, did not attempt to classify or arrange the different kinds, though he expressed a hope that such discrimination might afterwards be made. More recently, in the interesting work

of Dr. Wilson Philip on Indigestion, we meet with want of due arrangement. The genus *Limosis* of the present system will be made to comprehend most of these diseases, though perhaps the subdivisions are imperfect. We have not introduced any account of those various disorders which arise from, and are traceable to, derangement of these parts; for a disease cannot be much altered in its character by remote causes; and hence the terms *Dyspeptic-Phthisis*, cum multis aliis, seems misapplied; not that we forget that complaints arising from indigestion are most frequently curable, but because we hold it indispensable to pay particular attention to the state of the laboratory of the system in every class of complaint.

The class *Cœliaca* is divided into two orders and seventeen genera.

Order I. ENTERICA, [from the Gr. *εσπερον*, an entrail.]

Disorders affecting the Alimentary Canal.

This Order contains twelve Genera.

Genus I. *Odontia*, [from *odus*, a tooth.] Pain or Derangement of the Teeth in their Sockets. This genus embraces seven species.

1. *Odontia dentitionis*, difficult or painful teething, is further divided into four varieties: α , *lactantium*; β , *puerilis*; γ , *adultorum*; δ , *senum*.

α . *O. dentitionis lactantium* is a disease well known, and of frequent occurrence. It is caused by the tense state of gum covering the tooth; or, on the other hand, by the too-relaxed state, which allows the tooth to push it up and press on the nerves, without producing absorption. It seems, too, that constitutional disturbance has a great share, by rendering the nervous system particularly sensible, in encreasing the bad effects of dentition. Children of plethoric and irritable habits are peculiarly obnoxious to this complaint, as also those in whom costiveness is present. It is remarked also, that rickety children cut their teeth at advanced periods, and with much difficulty; and it is popularly known that favourable dentition is indicative of future health.

The following are a few of the morbid symptoms of difficult teething; viz. Inflammatory swelling of the gums, tonsils, and parotid glands; redness of the eyes and cheeks; vomiting, griping pains, tenesmus, profuse diarrhoea with green evacuations, and sometimes obstinate costiveness and retention of urine. Fever, accompanied with cough and other catarrhal affections, hicough, universal or partial tetanus, convulsions, &c. are the symptoms by which, according to the estimate of several writers, nearly a third of children are destroyed in difficult dentition.

These are the common symptoms of difficult dentition; but occasionally peculiar ones arise, which not unfrequently subside as soon as the tooth is cut; as, for instance, gutta serena, (Lorry, Traët. de Morb. Cutaneis, 1777. p. 411.) deafness; amaurotic blindness; enlargement of the knees; paralysis; and lameness of one or both legs. (Pasch, Abhandlung aus der Wundarznei von den Zähnen, S. 25, 36.) Aphthæ of the mouth; an inflamed tubercle over the tooth which is about to be cut; suppuration, ulceration, and even sloughing of the gums. Rachitis is also alleged to have its origin sometimes from difficult dentition. But we should rather suppose that in the last instance the cause had been mistaken for the effect. The first symptoms are local, and appear to be accompanied with pain, as the child is restless, uneasy, and rubs his gums, and carries every thing to his mouth. There are also generally inflammation, heat, and swelling of the gums, and an increased flow of saliva. A general state of fever follows, which is sometimes slight and sometimes violent, and is very remarkable both for its sudden rise and declension; so that in the first hour of his illness the child shall be perfectly cool, in the second flushed and burning hot, and in the third temperate again. The local symptoms which ensue in distant parts, are various and complicated; for

the appearance they put on is in some degree determined by the nature of the parts which they affect.

It is to be recollected, that the symptoms of irritation from teething have often very closely resembled inflammatory disease, especially of the brain, so that practitioners should in all cases take particular notice of the state of the teeth. The treatment of the disease is of course simple; namely, to keep the bowels open; in plethoric children to apply a few leeches behind the ears; when much irritability prevails, a narcotic of the least stimulating kind, as hyosciamus, may be given. But the most advisable step, in addition to the above, is to divide the gum over the tooth. The incision is to be made with the common instrument, well known by the name of the *gum-lancet*, which is far better for the purpose than an ordinary lancet, as that is apt to cut the tongue and lips, especially when the child moves about much. The grinding teeth require a crucial incision: all the others a simple transverse cut completely through the gum. The wound is then to be examined with the finger, in order to ascertain that no tense fibre over the tooth continues undivided. In this country practitioners seldom apply any thing to the incision; but abroad, it is not uncommon to put to it a mixture of lemon-juice and honey. A premature incision of the gum soon closes again, and therefore does little service; but it is improbable that the cicatrix, thus produced, can be any impediment afterwards to dentition, as many have imagined; for it is an established fact, that cicatrices in general are more disposed to ulcerate and be absorbed, than the original parts of the body. Mr. Hunter, indeed, informs us, that he performed the operation above ten times upon the same teeth, where the disease had recurred as often, and every time with the absolute removal of the symptoms. No idle apprehensions should therefore deter us from dividing the gum, where there is any chance of benefit from the proceeding. At the same time this is not recommended as a prophylactic measure, but as being proper only when illness, suspected to arise from dentition, actually exists.

The use of hard applications, as biting the root of marsh-mallows, smooth corals, boars' tusks, &c. render the gums callous; but more good might, perhaps, be derived, if substances with roughish surfaces were employed.

The anomalies which we remark in regard to the backwardness, or on the contrary unusual forwardness, of dentition, do not seem worthy of notice in this place, because they are scarcely within the reach of medical assistance: it is usually remarked that healthy children cut their teeth early; while those who are rickety, or otherwise affected with chronic complaints, are equally late in performing the same process. The most common order of the first teething is as follows: In the sixth or seventh month after birth, the first or *milk* teeth make their appearance through the gums. The two middle incisors of the lower jaw are those which most frequently first come out; and, in the course of a few weeks, they are generally followed by the two middle incisor teeth of the upper jaw. At length, after some months more, the lateral incisors and the canine teeth show themselves. The anterior molares, or front grinders, do not commonly pass through the gums until the child is a twelve-month old.

β . *O. puerilis*; and γ . *O. adultorum*. These two varieties may be considered together. It seldom happens that much irritation is produced in these advanced terms of dentition. Occasionally, indeed, the protrusion of the *dentes sapientie*, or "teeth of wisdom," in adults, is so long delayed, that the jaw having ceased to enlarge, and being completely filled with the other teeth, the pressure of the *wise teeth* on the coronoid process when they arise from the upper, and on the superior teeth when from the lower, produces a trifling inconvenience; but this is easily remedied by freely opening the gum, or by extracting these useless teeth.

The same variety, in regard to time of appearance, exists in the second dentition as in the first. The common period is from eight or nine to thirteen years of age. Many cases of three or more dentitions have been recorded on undoubted authority.

δ. O. senum. The reproduction of teeth in advanced age is another curious but well-authenticated fact. In general the teeth which appear at this period are irregular and useless. John Hunter, however, saw one case in which a complete set arose in both jaws. Dr. Good mentions two cases in which a few straggling teeth were cut at a very late period of life; and which were further remarkable on account of the patients recovering, the one her hearing, the other her sight; senses of which they had been for years partially deprived. For further cases in which teeth were produced very late indeed, the reader may consult Ysäbern, Journ. de Med. tom. xxv. p. 316. Nitzsch, Ephem. Erudit. Ann. 1666, p. 175. Ephem. Nat. Cur. Dec. 11. Ann. iii. Obs. 15. and the Phil. Trans. vol. xxvii. 1713.

2. Odontia dolorosa, acute pain in the teeth or their sockets. Dr. Good makes four varieties of this disease; viz. α, cariosa; β, catarrhalis; γ, nervorum; δ, sympathetica.

α. It appears agreed by the most enlightened physiologists, that the internal part and fang of the teeth are vascular, while the enamel is an inorganic secretion. Caries therefore may arise from inflammation of the tooth giving rise to absorption of the substance and enamel; or the same process may take place from chemical solvents applied externally. We should be inclined to think that the former cause is the most common. The more remote causes of the inflammation of the teeth are various, and many of them inscrutable. Heat and cold, which are transmitted readily through the enamel, are perhaps the most frequent. Disordered secretion from the salivary glands are perhaps the most usual cause of decomposition of the enamel; for we cannot suppose that the substances we swallow, heterogeneous as they are, can produce much effect in passing so rapidly as they do through the mouth. It is scarcely necessary to remark that inflammation of the gums will generally communicate their morbid state to the teeth. By whatever means, however, as Dr. Good says, a decay or caries of the teeth may be produced, it appears to operate in three different ways: sometimes commencing in the internal cavity, and working its path outward; sometimes outward, and working its path within; and sometimes by a wasting of the enamel, and consequent denudation of the bony part. The first is the least common affection, and is discoverable by the appearance of the internal blackness through the external shell; the third is more common than the first, and the second the most frequent of the whole; evincing, at its commencement, the appearance of an opaque white spot through the enamel, which gradually crumbles away about the spot, and thus discloses that part of the body of the tooth which forms the original seat of the disease, and which, by its continuance, converts the early spot into a hole, and at length destroys it altogether, or at least down to its neck, unless the pain produced by its progress compel the patient to have it extracted before the disease advances thus far.

It is of no practical use to insert the various remedies by which the pain arising from denudation of the nerves of the teeth has been attempted to be alleviated. They are for the most part of that nature which, by excessively stimulating the nerve, entirely destroys its sensibility. Hence, perhaps, the most efficacious are the strong mineral acids, carefully applied by means of a pin or probe to the carious surface; but this requires that the gum, &c. should not exhibit any marks of inflammation. Small degrees of caries, or slight fissures, may be relieved by filing, filling up with gold, &c. Of course, however, the only radical cure, where much caries is present, is to extract the tooth; for the mode of performing which see the article SURGERY.

If inflammation have not produced caries (and there is often violent and excruciating pain irreparable to decayed teeth), lancing the gums freely, and attending to the sympathetic action, whence they derived their diseases, e. g. disordered gastric or uterine function, will often effect the cure. The inflammation often extends over the whole face, and is particularly distinguished by the exasperation of the pain which warm liquids give rise to when applied internally. This is most effectually combated by cooling lotions and by purges. The ill effects of the use of the stimulating remedies in this kind of tooth-ache is exemplified strongly by the following case, extracted from the London Medical Journal, vol. iii. communicated by Mr. Fowler, of Princes-street, Hanover Square. "A gentleman whom I attended, was afflicted with the tooth-ache in the first dens molaris. Being much alarmed at the idea of extraction, he applied to an old woman, who at that time was esteemed famous for the cure of the tooth-ache without drawing. She had applied her nostrum to the tooth twice within the space of three days; and, on the fourth, he came to me, complaining of a sore mouth, telling me where he had been to get relief, and that the liquid which had been used was very caustic. From the appearance of the violent inflammation, which had taken place from the diseased tooth to the epiglottis, I advised him to consult some medical gentleman of eminence immediately; with which advice, I am sorry to say, he did not comply. Not hearing from him on the third day, I called (en passant), but he was too ill to be seen; a derangement of intellects had taken place. I called again four days afterwards, and was informed, that he had died raving on the preceding day. I had every reason to believe, that the fluid which had been inserted into the tooth with a view of destroying the nerve, had produced this tragical end."

γ. Disease of the nerves of the teeth is perhaps the most troublesome species of tooth-ache. The appearances it exhibits are anomalous; and the complaint is so frequently associated with caries of the teeth, that its precise nature is often unknown until some of the teeth have been extracted without the least alleviation. This affection arises from the same cause as other morbid affections of nerves; often from gastric, intestinal, or biliary, derangement; pregnancy, plethora, worms, &c. and is to be combated only by removing the cause, and by the use of remedies having the effect of allaying nervous irritation. As this affection seems, then, to arise from various causes, it is capable of comprehending the other varieties mentioned by Dr. Good. We shall have occasion to speak more at large on this subject when treating of NEURITICA.

3. Odontia stuporis, or tooth-edge, has two varieties: α, a stridore; β, a acritudine. The former, which is associated in a remarkable manner with peculiar imaginations, is the sensation we feel when the edges of two knives are rubbed across, when we cut a cork, or rub our coat-sleeves together. Dr. Good mentions the curious circumstance, that a friend of his experienced this sensation in a remarkable degree from hearing a woman cry bullaces for sale. It is perhaps difficult to explain this phenomenon. It is most probably somehow connected with sympathetic action between the nerves of teeth and ear; unless we could admit the notion of Hagerup, that the nerves of the teeth are auditory, in which case this operation of harsh sounds might readily be accounted for. As connected with this point, we beg the reader to notice the conclusion of our article DUMBNESS, vol. vi. p. 117.

β. The latter variety is produced by most chemical substances that can denude or dissolve the enamel. It is felt at the edge of the teeth, perhaps on account of the thinness of the enamel at that part. Morbid secretions ejected from the stomach into the mouth frequently cause this unpleasant sensation. Mechanical injuries, as gnawing the teeth, attrite the enamel likewise; and it is said to be a symptom in rachitis, bilious disorders, &c. The removal

removal of the remote cause is of course the only plan of treatment. Warm liquors, and the chewing of almonds, have however been recommended.

4. *Odontia deformis*, deformity of the teeth, from error, shape, position, or number. The teeth sometimes grow in a very irregular manner; as from the palate, underneath the tongue, or not upright in the gums. The latter circumstance is a very general consequence of neglecting to draw the first teeth of children on the appearance of the second. It may be remedied, when in a trifling degree, by pushing the tooth from time to time towards its proper situation; or, more permanently, by means of some mechanical contrivance, as silk thread or Bruner's machine. A metallic plate answers the purpose very well; its width should be less than the height of the teeth; its breadth equal to three teeth; it is to be applied to the inside of such teeth as incline inwards, and to the outwards of those which incline outwards; at the ends of the plate are two holes, through which the silk-threads, smeared with wax, are to be passed, and, after crossing each other, are to be tied over the oblique tooth.

When the teeth are so far removed from the gums as to render these methods ineffectual, extraction is of course the only resource. Albinus records an example, in which a tooth grew out of the maxillary process below the orbit. It was concealed until it made its way out in this extraordinary situation. *Annot. Acad. t. i. p. 54.*

The teeth have sometimes been observed inverted, their bodies being situated towards the jaw. *Pollich, Increm. Ossium, p. 25. Albin. c. 9. Palfin, c. 9.*

Sometimes the teeth are placed too distant apart, so that between their crowns large interspaces are left. Thus, in children three years of age, the crowns of the milk-teeth are so close to each other, that they are laterally as it were in contact; but, in children seven years old, there are wide interspaces between them. The reason of this is owing to the jaw increasing in size, while the dimensions of the teeth undergo no alteration. The second or permanent teeth, on the other hand, (at least the first twenty of them,) have larger bodies than the milk-set.

Frequently the tartar insinuates itself between the crowns of the teeth, and occasions a considerable separation of them. We need scarcely observe, that the cure requires that the tartar should be taken off, and the teeth reduced into their natural position.

The deformity of which we are now treating, is occasionally ascribable in adult subjects to the preternatural breadth of the jaw, in which circumstance it is absolutely incurable.

The teeth may be too crowded together, so that their crowns are laterally in contact. This defect may extend to some or all the teeth. The frequent consequence is, that the lateral margins of these parts become carious. This deformity arises from the great width of the crowns of the teeth, and it may be ascertained by ocular examination. In some instances, all the bodies of the teeth are preternaturally wide, in others only a certain number of them. It is caused likewise by the uncommon shortness of the jaw. It may be known by observing that the crowns of the teeth are not too large, and that the alveolar arches are strikingly diminutive. The mode of cure consists in filing off a little of the lateral edges of the teeth affected.

Sometimes the number of the teeth exceeds what is the usual share of the human species in general; and this particularly occurs whenever the number amounts to more than thirty-two. Columbus has seen thirty-three; Fauchart, thirty-three and thirty-four; Bourdet, thirty-six; and Ingrassias thirty-six, including twenty-four grinders.

In some instances, the excessive number is owing to there being a double row of teeth. This malformation may happen to both jaws, or be confined to one. It has been noticed in both jaws by Munick, p. 144. Plinius, c. xi. p. 623. C. Bartholinus, p. 464, &c. Arnold met

with a boy, fourteen years old, who had all together seventy-two teeth in his mouth. There was a double set of the incisores, canine teeth, and three posterior grinders; but the anterior grinders were triple: consequently there were counted in each jaw eight incisores, two canine on each side, and twelve molares. The incisores were not arranged in an even double row; but each row seemed irregular, and its order as it were promiscuous. The arrangement of the canine and grinding teeth was more regular. None of these teeth were affected with caries. *Obs. Phys. Med. p. 69.* See also Hunter, p. 115, 199, for examples of a double row of teeth. Bloch, *Medicinishe Bemerkungen*, p. 19. Triple row, Neander, *Physic*, Part II. Numerous and confused rows, *Eph. Nat. Cur. ann. iii. vii. viii.*

5. *Odontia edentula*, or toothlessness. This species consists of four varieties. *a*, Peculiaris; from constitutional defect. *b*, *A vi extrinseca*; from external violence. *c*, *A carie*; from decay. *d*, *Senilium*, from old age. In all these varieties, the affection seldom extends to the whole teeth, except in the case of old age. In the first, or that from constitutional defect, a few only in one or both jaws are left unprovided for; while sometimes an effort to this purpose is commenced, but not carried to perfection. "In the head of a young subject which I examined," says Mr. J. Hunter, "I found that the two first incisor teeth in the upper jaw had not cut the gum; nor had they any root or fang, excepting so much as was necessary to fasten them to the gum on their upper surface; and, on examining the jaw, I found there was no alveolar process nor sockets in that part." *Nat. Hist. of the Human Teeth*, p. 8. It is obvious that the only method of remedying this defect is by inserting supplemental teeth; as to which see the article SURGERY.

6. *Odontia incrustans*, tartar of the teeth. Tartar is an earthy crust, which adheres to the teeth. As it fills up the interspaces of several of the teeth, and occupies their external surfaces, it is seldom observed upon their insides. By the Greeks it was called *odontolithos*, from *odon*, a tooth, and *lithos*, a stone. By others it has been termed *tophus vel calculus dentium*.

With regard to the effects of the tartar, it displaces the teeth, and renders them loose and painful; it also separates the gums from the fangs, producing caries in the latter, and a bad smell in the breath. In respect to colour, the tartar of the teeth is of three kinds, namely, dark-brown, yellow, and black.

Since many persons who never clean their teeth at all are not disfigured with these depositions of tartar, it appears that a peculiar disposing cause is necessary for the occurrence of the complaint. It is most likely that morbid states of the saliva are the most frequent; for there are certain persons, whose teeth are constantly incrustated with tartar, notwithstanding they are in the continual habit of washing their teeth and mouths. Berdmore relates a surprising example of this sort. A man, thirty-two years of age, had the teeth of each jaw coated with solid tartar, half an inch in thickness, both on the outside and inside of the teeth, and on the surface of the gums, so that the interstices of the teeth were altogether invisible. The gums were every-where pushed off the teeth, and painful. The incrustations upon the incisor teeth were so thick, that the lower lip was rendered more prominent. During a fortnight, Berdmore removed every day some of the tartar from the teeth with an instrument, and at length employed a dentifrice and brush. The retracted gums were scarified, and thus made to adhere to the necks of the teeth. The patient was obliged to brush his gums and teeth three times a-day, partly with a view of preventing the new formation of tartar, and partly in order that the regeneration of the gums might be still more promoted. But, although the patient strictly followed this plan, his teeth and gums, in the course of half a year, became again covered with an extremely-thick coat of tartar. Berdmore was therefore under

under the necessity of recommending the use of a stiffer brush, and a dentifrice made of shells, for the purpose of removing the tartar.

With respect to the treatment of tartareous incrustations of the teeth in general, it is essential to remove the tartar, and clean the teeth well every day. It is also needful to correct the state of the salivary secretion.

Persons who are in the habit of using acrid tinctures or powders which dissolve the enamel, and make it porous, are frequently troubled with tartareous incrustations. The cause being avoided, the mode of treatment is the same as in the preceding cases.

This affection sometimes arrives at such a pitch, that several of the teeth become concremented together. See Eustachius de Dent. cap. 2.

7. Odontia excrefcens. Varieties: α , spongiosa; β , extuberans.

α . O. spongiosa is taken to apply to the disease which has been so well described by Hunter as scurvy in the gums, from its identity with one of the symptoms of sea-scurvy. It is not to be concluded however that the term is exactly correct, or that this symptom is always connected with a general scorbutic diathesis; on the contrary, the above-mentioned author has often seen scurvy of the gums in persons quite healthy, in patients afflicted with scrofula, and other complaints equally remote in their nature from scurvy. The primary symptoms of this complaint are those of inflammation; viz. pain, redness, and turgescence. The gums bleed on the slightest injury; the tenderness is first observable on the edges; the smooth skin appears denuded on the latter parts; and often, particularly in the interstices between the teeth, there shoot up irritable granulations. To this state ulceration and absorption supervene: the former process is often so extensively present as to denude all the teeth of each jaw; more commonly, however, it is confined to one part, at most to one jaw. It frequently happens in this case that the alveolar process disappears by absorption, in which event there is always a very considerable discharge of matter from the inside of the gum and alveolar process, flowing out in the direction of the tooth. In many of these cases, we find that, while the gums are ulcerating in one part, they are swelling and becoming spongy in another, and hanging loose upon the teeth; and this often takes place when there is no where any ulceration. At length the teeth become loose, and in a few years drop out, one after the other, at short intervals, until the person is rendered toothless. It is from this complaint that many persons lose their teeth at a very early period of life. Indeed most individuals are more or less subject to it; as the gums, in some part or another, although there be no symptoms of the disease, are likely to become preternaturally red, enlarged, and tender. Therefore, whenever a tendency to this disease is observed, great care should be taken to apply such means as will arrest its progress.

The treatment of scurvy of the gums consists in freely lancing them when in the inflamed or spongy state. The use of astringent lotions too is after this of essential service. These stimuli to be varied according to the feelings of the patient. The most common are infusion of roses with the tincture of myrrh, decoction of bark, solutions of alum, arquebuse-water, &c. In some cases great benefit is derived from the use of sea-water, and Mr. Fox observes, that he always recommends it to be used warm if the gums be tender. When the gums are exceedingly tender, and have any tendency to ulceration, Mr. Fox recommends washing the mouth very frequently with barley-water sweetened with honey. In two or three days, if the soreness is diminished, the lancet is to be cautiously used with the diluted tincture of myrrh as a wash. When this treatment fails in making the edges of the gums heal, and they hang loosely about the necks of the teeth, Mr. Fox observes, that

much good will be derived from the use of a solution of the argentum nitratum. He says, that, if the disease be only partial, the caustic should be applied with a camel's-hair pencil dipped in the solution. This remedy is described as communicating a new action to the gums, and they generally get well in a short time. Indeed, whenever the gums are very full, and discharge a good deal of offensive matter, washing the mouth with a solution of lunar caustic is, according to Mr. Fox, a very excellent means of rendering the mouth sweet and comfortable. This remedy, when applied to the fore edges of the gums with a hair-pencil, may be used as strong as in the proportion of a dram of the argentum to an ounce of distilled water; but, if the mouth is to be rinsed with it, not more than one grain of the caustic should be put to two ounces of water, lest, by being too strong and getting into the throat, it should occasion an unpleasant nausea.

Persons, who are often troubled with inflammation of the gums, ought to have them scarified whenever they become painful, or are more turgid than usual. By the loss of a small quantity of blood, the affection is immediately relieved, and kept from committing the ravages which have been related. In scarifying the gums, the lancet should be applied longitudinally to those parts which are situated between the teeth, because, if the gums are cut where they cover the fangs, they will shrink in healing, and leave the necks of the teeth exposed. On the other hand, if the gums are lanced in the angles between the teeth, they will be drawn tighter in healing, and the teeth be eventually strengthened. *Fox on the Diseases of the Teeth.*

In addition to these measures, it will often be necessary to correct the state of the constitution, when scorbutic or scrofulous appearances are present. Frequently, too, secretions from the alimentary canal should be procured, for the purpose of removing irritation extending to the gums, as part of that structure. It is to be remarked also, that the free scarification we have urged above should be dispensed with in scrofulous cases, since, according to the testimony of Hunter, they do harm in these cases. This author speaks favourably of sea-bathing, and rinsing the mouth with sea-water.

The next variety, β , O. extuberans, seems closely allied with the first, as a consequence; unless indeed we admit the belief that in this the inflammation is attached to the bony structure. However this be, the tooth affected in *gum-bile* is generally found swelled, or in advanced cases absorbed at its fang, while the substance of it remains sound. Sometimes, on the other hand, it is supposed to originate from a disease in the socket, or jaw, which has no connexion with the tooth, and only affects it secondarily. Upon drawing such teeth, says Mr. Hunter, they are generally found diseased at or near the point, being there very rough and irregular, like ulcerating bones. The last kind of gum-biles may arise altogether from such a cause, the appearance on the fang of the tooth being only an effect.

The same surgeon has explained, that these abscesses, whether arising from the teeth or the sockets, always destroy the alveolar processes on that side where the matter is discharged, on which account the tooth is rendered more or less loose. This event may be seen in many skulls, and also frequently in the living subject; for, when the alveolar process is destroyed on the outside of the tooth, if the latter part be moved, the motion may be observed under the gum all along the fang. When these abscesses have burst through the gums, they often close up, and put on the appearance of being healed; but such as discharge themselves between the gums and teeth can never heal up, because the gum cannot unite to the tooth. At certain periods, however, the discharge from them diminishes, owing to a subsidence of the suppuration; but, either exposure to cold, or some other accidental cause, occasioning a fresh inflammation, an increase of the suppuration is the consequence; and either

the old orifice in the gum becomes opened again, or the discharge by the side of the tooth is augmented. In the latter case, Mr. Hunter believes, that the affection is less severe than in the former, in which fresh ulceration is required for the passage of the matter. Thus a gum-bile goes on for years, healing and opening alternately; the effect of which is, that the alveolar processes are at length absorbed, and the tooth gets looser and looser, till it either drops out, or is extracted. Most probably, in all such cases, says Mr. Hunter, the communication between the cavity of the tooth and the jaw is cut off; yet it keeps in part its lateral attachments, especially when the gum grasps the tooth; but these attachments are less when the matter passes between the gum and the tooth; though some of them are still retained, particularly on the side opposite to the passage for the matter.

With regard to the symptoms of gum-biles, those which open through the gum may be distinguished by a small rising between the arch of the gum and the attachment of the lip. Upon pressing the gum at the side of this point, some matter will commonly be observed oozing out at the eminence. This eminence seldom subsides entirely; for even when there is no discharge, and the opening is healed over, a small rising may still be perceived, which shows that the gum-bile has been there. Such gum-biles as discharge themselves between the gum and the tooth are always discovered by pressing the gum, whereby the matter is forced out, and is seen lying in the angle between the gum and the tooth.

A fungus will sometimes shoot out of the orifice of a gum-bile, in consequence of a luxuriant disposition to form granulations on the inside of the abscess, and the opening being backward to heal. In this case, the tooth acts as an extraneous body; and, by the secretion of matter, the abscess is prevented from healing. There is no difference in the treatment of gum-biles, whether they arise from a diseased tooth, or a disease in the socket. When an abscess forms round the root of a tooth, the tooth, by losing its connexion with the other parts, loses every power of union; as it is not endowed with the power of granulating. Hence it becomes an extraneous body, or at least acts here as one, and that of the worst kind, which, says Mr. Hunter, it is not in the power of any operation in the machine to get rid of. In this case, therefore, the only cure is by the extraction of the tooth; and, as this is the last resource, Mr. Hunter observes, that every thing should be done to make the parts as easy under the disease as possible, so that this operation may be postponed.

When the abscess has burst through the gum, Mr. Hunter advises us to keep the opening from closing, with a view of preventing future gatherings. He recommends enlarging the opening, and keeping it enlarged till all the inside of the abscess is skinned over, or the aperture in the gum loses the disposition to close up. This will in a great measure prevent any future formation of matter, or at least whatever is formed will find a ready outlet, so that no accumulation can happen. The end of the fang, indeed, will be exposed; but, under such circumstances, it will not be in a worse situation than when soaked in matter. Mr. Hunter next remarks, that one method of doing this is to open the gum-biles by a crucial incision the full width of the abscess, and fill it with lint, which should be dipped in lime-water, or a diluted solution of lunar caustic, made by dissolving one drachm of the caustic in two ounces of distilled water; and the wound should be dressed very frequently, as it is with difficulty that the dressing can be kept in. If this is not sufficient to keep the wound open, it may be touched with the lunar caustic, so as to produce a slough; and the application may be repeated, if found necessary. Some difficulty is experienced in keeping on the dressings; but constant attention will make up for the inconvenience of situation. Mr. Hunter also speaks in favour of touching the surface of the abscess with the lapis septicus, and

keeping the lip from coming into contact with the part for one minute, within which space of time the caustic will penetrate to the bottom. The surface of the bile should be wiped as dry as possible, that the caustic may not do mischief by spreading.

It has been a practice to extract the tooth, then file off any diseased part of it, and immediately replace it. This method has often failed, in consequence of the tooth being introduced into a diseased jaw; but occasionally it has succeeded.

When a gum-bile is formed on a back-tooth, the treatment, according to Mr. Hunter, need not be so nice as when the abscess is situated upon any of the fore-teeth, because appearances are then of less consequence. Therefore the gum may be slit down upon the fang through its whole length, from the opening of the gum-bile to its edge; which proceeding will prevent any future union, while the healing of all the cavity of the abscess will prevent any future collection of matter. The wound afterwards resembles the hare-lip. Hence this practice is not advisable when the place of the cut would be much in view, as when the abscess is situated upon any of the fore-teeth. In these cases, when the granulations protrude from the small opening, a cure may be effected in the manner above mentioned, or the granulations may be cut off with a knife or lancet. However, in general, a permanent cure cannot be thus effected, and the granulations rise up again.

In consequence of bad teeth, excrescences also arise from the gum, near or in contact with the teeth which are diseased. In general, such growths may be easily removed with a knife, or any other cutting instrument which may be found most convenient. They will often rise, in a day or two after the operation, as high as ever; but this newly-generated matter generally soon dies, and the disease terminates well. They frequently have so much of a cancerous appearance as to deter surgeons from meddling with them; but Mr. Hunter believed, that, when they arise at once from the gum, and appear to be the only diseased part, they have no malignant disposition. However, this great surgeon had seen them with very broad bases when the whole could not be removed, and yet no bad consequences resulted from the partial removal of them. In a few years they often rise again, by which means a great deal of trouble is occasioned. The writer of this article has seen a case of this nature, in which the extent and rapid growth of the fungus rendered excision impracticable, very successfully removed by tearing out, and the use of caustic.

The few remarks we have made on the subject of diseases of the teeth and gums, clearly indicate the regulations which should be adopted for the preservation of these beautiful structures; viz. by abolishing the use of all dentifrice capable either of mechanically detriting, or chemically dissolving, the enamel, as well as of all alimentary substances which have the same effects; but at the same time of diligently removing, at least once a day, all sordes from the mouth. Perhaps nothing conduces to the same purpose more than healthy action of the stomach; for the viscid state of the salivary secretions are well known when that organ is deranged; and we may further remark, that fine teeth are most usually observable in those who are free from gastric disturbance; and that few animals are subject to decayed teeth in an equal proportion to our own race. As a popular notion is prevalent, that the use of sugar is prejudicial to the teeth, it is proper in this place to contradict it as far as regards the circumstance of its dissolving the enamel; for general de Beaufort ate every day for forty years a pound of sugar, and lived to the age of seventy. After death, his viscera were found free from disease, and his teeth sound. (*Anecdotes de Médecine*, tom. ii. p. 35.) Plenk put a healthy tooth into some syrup diluted with water, and kept it there two months, at the end of which time it was taken out, and found to have undergone no change.

(Doctrinâ

(Doctrinâ de Morb. Dentium, p. 52.) How far, however, this substance may indirectly hurt the teeth, by deranging the gastric functions, may admit of some discussion.

Genus II. *Ptyalismus*, [from *πλω*, to spit.] Disorders affecting the Salivary Glands. This genus contains three species.

1. *Ptyalismus acutus*, or salivation, has three varieties: α , *hydrargyratus*; β , *sympatheticus*; γ , *mellitus*.

α . *Ptyalismus hydrargyratus*. This consists in an increased secretion of saliva from an extreme action of the salivary glands. As an idiopathic disease, it is seldom seen, and even then not until it has assumed the chronic form. It more usually makes its appearance in consequence of irritation from mercury. Other substances, however, will produce it; but this is the most common, and the only one we are acquainted with which increases this secretion with certainty and precision. Formerly the use of mercury for the purposes of salivation was carried to so great an extent, that frequent sloughings and ulcerations of the mouth were the consequence. But, since it has been known that the degree of violence with which mercury is pushed is far from increasing its curative effects, we have not to record so many of those frightful appearances.

The production of this disease is generally the work of the physician. With respect to the quantity of mercury necessary to produce it, the greatest variation is observable. While, on the one hand, it is carried into the constitution without visible effect for very long periods, or is carried off by sweat, purging, &c. on the other, the most trifling doses in different constitutions produce violent and alarming effects in a few days. The instances in which the patients have been insensible for long periods to large and frequently-repeated doses of this medicine, will be familiar to most of our readers. The opposite state of constitution is not perhaps so frequently met with; but even that is sufficiently common. The usual quantity of mercury required is about five grains of the blue pill, which contain a grain of mercury, to be repeated three times a-day; or, if calomel is employed, a grain night and morning at first, or two grains at night, guarded with a grain of opium, lest it should irritate the bowels, will be a proper dose. If the ointment is preferred, half a dram of the strong mercurial ointment may be rubbed in night and morning. In about a week or ten days, by either plan, the mouth will be slightly sore in the majority of cases; while, on the contrary, as we have before mentioned, cases are not uncommon in which two or three small doses of mercury have produced copious salivation. In debilitated habits, three grains of calomel given in the dose, or one grain on three succeeding nights, has been found to induce the discharge. It has been brought on by sprinkling precipitate on a wound (Hildanus); by a mercurial injection in a fistula; by a mercurial girdle; or by the mercurial ointment employed to kill lice. In these cases, the idiosyncrasy of the patient seems to influence the effect; and, therefore, this should be, if possible, ascertained before mercury is exhibited in any considerable quantity.

It is usual at present to produce this discharge in a very moderate degree; but some action on the gums is necessary, to show that the medicine has been introduced into the system. This is particularly the case in lues and chronic inflammations of the liver. In other complaints it is less essential if the symptoms disappear. The effectual relief of these is the only certain criterion by which we are taught to leave off the medicine; and it will be prudent to continue it for some time after these have disappeared.

Of course this is not the proper place to discuss the effects of mercury, or, generally speaking, its administration; but, as far as regards the bringing on of ptyalism, we cannot help remarking, that, as its continuance is always unpleasant, and sometimes difficult of cure, a greater degree of care is required in its institution than

the generality of practitioners think proper to adopt. Under this impression, we cannot do better than urge the rules of Dr. Hamilton on this subject; whose advice, however it may be thought by some to favour of unnecessary minuteness, is nevertheless highly useful in many cases, and has the advantage of erring on the right side in all.

"The first precaution to be adopted in this climate during a course of mercury, is confinement within doors, with a regulated temperature of the apartment. The utility and the necessity of this precaution must be so obvious, that it is unnecessary to expatiate upon the subject. Not that it is meant that the patient should be confined to an ill-ventilated room; for, on the contrary, a plentiful supply of fresh air is of essential utility. While the boldness with which Mr. Pearson exposes such patients to cool dry open air may be well suited to persons who have been immured in a crowded hospital with a mercurial atmosphere, it certainly would be most prejudicial to the better ranks of society in private practice.

"2dly. The diet ought to consist of the mildest possible food, such as preparations of milk and farinaceous matter, with weak animal mucilages. In short, all stimulant food or drink of every description, ought to be most scrupulously refrained from.

"3dly. If the individual be robust, sixteen or twenty ounces of blood should be drawn from the arm before any preparation of mercury be exhibited. Where, from the delicacy of the patient, blood-letting cannot be advised, confinement within doors a week previous to beginning the mercury, and during that time one or more doses of cooling physic ought to be taken.

"4thly. The mercury must not be given in such quantity, or with such activity, as to produce a sudden effect upon the system. This is certainly one of the most important practical improvements, suggested by Mr. Abernethy and others, and confirmed by the late experiments; for irreparable mischief was often committed by the hurry with which the system was loaded with mercury. If the other precautions be implicitly adopted, the more slowly the mercury is administered, the more certainly, and perhaps speedily, will the primary sores heal.

"5thly. Although, in particular cases, some of the more active mercurial oxydes may be useful, the blue pill or the blue ointment furnish in general the safest and mildest preparations of mercury.

"6thly. Salivation is to be guarded against by lessening the dose, or suspending the medicine, whenever the brassy taste in the mouth is perceived. The same measures are to be pursued if any irritation of the bowels threatens.

"7thly. Some vegetable diluent ought to be drunk in large quantities, for the purpose principally of preventing the peculiar state of the blood, which mercury is so apt to produce. The decoctions of sarsaparilla, guaiacum, sassafras, &c. answer this purpose; and perhaps they are all equally efficacious, if drank tepid, and in sufficient quantity.

"8thly. It is extremely difficult to establish any general rule for the duration of a mercurial course, as that must be regulated very much by the circumstances of each particular case. From two to three months may perhaps be sufficient in the majority of cases.

"9thly. The daily use of the warm bath, where that can be conveniently commanded, is found particularly beneficial.

"10thly. If any irritable feelings occur while under the influence of mercury, the use of the medicine should be instantly suspended, and the most active measures for checking the progress of such complaints ought to be carefully adopted. Preparations of camphor, of the spiritus ammoniæ aromaticus, of opium, of cicuta, &c. are feverally useful, according to the circumstances of each case.

"11thly. After the mercurial course is finished, the patient ought to remain within doors for at least a fortnight, improving the diet, (though still abstaining from wine

wine and stimulating liquors,) and taking gentle exercise, progressively increasing it according to the return of strength.

"Lastly. The flannel and woollen dress, in which those under a course of mercury should be, literally speaking, encased, is to be changed daily; and, besides the ordinary precautions of having those articles of dress well washed, it is necessary that they be exposed for at least twenty-four hours to the open air, and afterwards to the influence of a large fire, before being again used."

Salivation is used as a curative means in lues, liver-complaints, in some fevers, &c. in our account of which we shall take further notice of it. It has been recommended, moreover, as a cure for phthisis by Dr. Rush; and a case was published in the 3d volume of the London Medical and Physical Journal, strongly corroborative of this treatment, by Dr. Peiffer. We may here remark that there is every reason to suppose that case, as well as several others recorded in support of the same opinion, were not genuine phthisis, but rather that form of pulmonary disease which supervenes on disordered states of the hepatic system, and in which mercury undoubtedly exerts a salutary influence.

With regard to the treatment of mercurial ptyalism, it is generally remarked, that, as soon as the mercury ceases to be administered, the spitting ceases of itself. At all times, however, this does not take place; and accordingly we have many methods recommended by various authors for its removal. Those most in repute are purgative medicines, opium, and sulphur. If any mercury remains in the system, these will sometimes relieve; but these medicines are not all of equal efficacy. Mr. Hunter thinks purgatives useless, and Dr. Parr has not found them highly beneficial, though he thinks they sometimes lessen the discharge. Opium is highly useful, particularly in the form of Dover's powder. Sulphur is known to lessen the activity of mercury out of the body; and, as it enters the circulation with little change, it may have the same effect on the circulating system. But this, like other finely-spun theories, deceives us in practice. Sulphur is by no means highly useful in these circumstances. Diuretics, which seem to excite what appears to be a vicarious discharge, have been employed but with little effect. We believe every practitioner, by the means mentioned, has been able to mitigate salivation; but by no remedies, in every instance, to conquer it wholly. See Hunter, Swediaur, Bell, and Howard, on the Venereal Disease; Stahl de Salivatione Mercuriali; Alberti de Hydrargyrosi; and Hamilton on the Use and Abuse of Mercurial Medicines.

As a critical discharge, salivation is for the most part salutary, and often terminates the disease that excites it. This is frequently the case in fevers; and the following instance is perhaps worth relating. A lady, aged twenty-four, and of a delicate constitution, was attacked with the typhus in the spring of 1788, under which she gradually drooped for nearly three weeks. Dr. Good thought her in great danger; but on the twentieth day a sudden and copious ptyalism supervened that evidently afforded her considerable relief. "This continued for upwards of a week, the daily secretion being never less than a pint, and twice not less than a pint and a quarter. Yet, instead of adding to her debility, it appeared to give fresh vigour to the system: the digestive function resumed its office; she daily improved in strength, and, on its cessation at the above period, was in a state of convalescence."

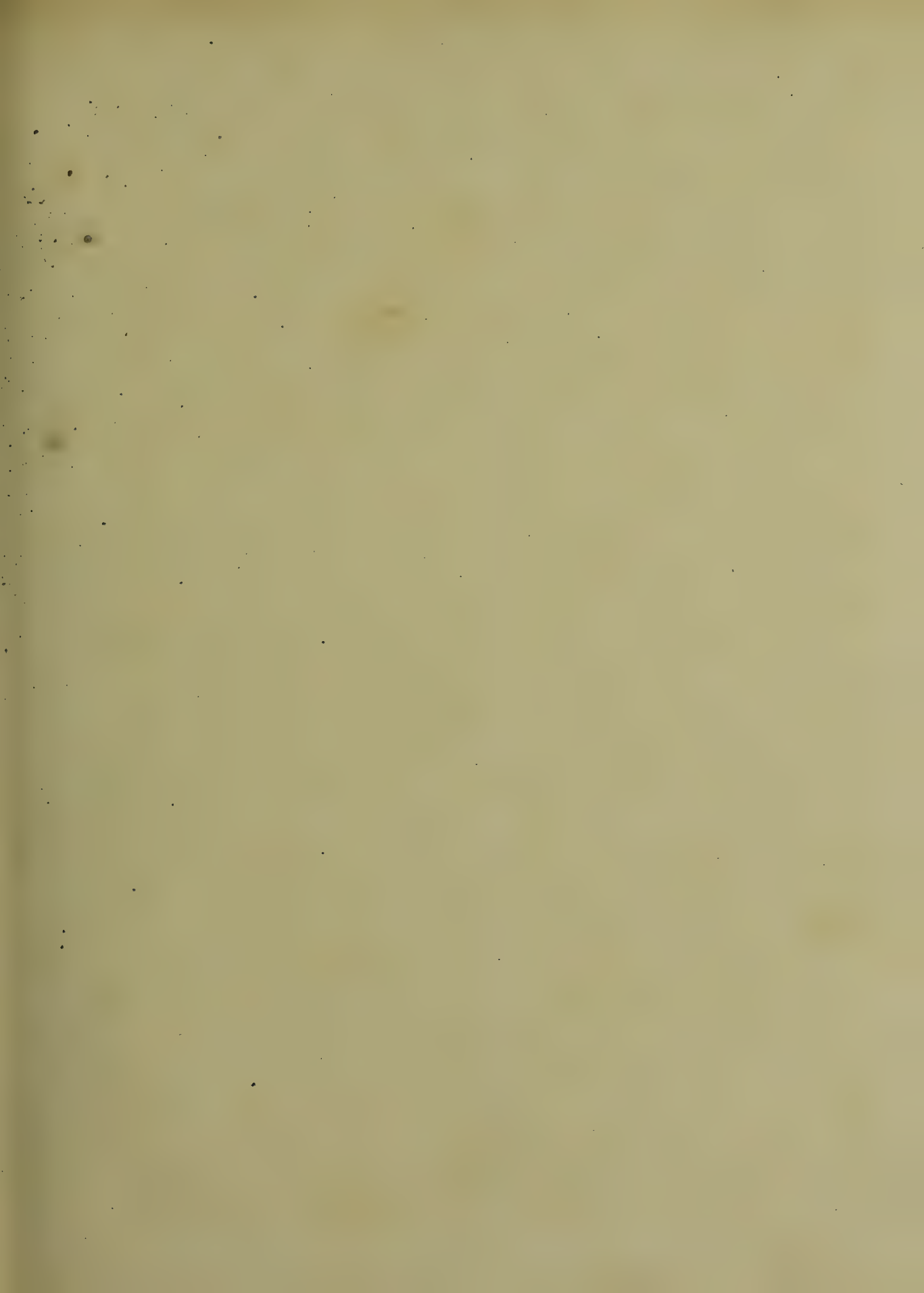
We have numerous histories in which it has proved equally serviceable about the acme of small-pox; and the fluid of dropries is said to have been frequently discharged by this channel. An extraordinary instance of this is related by Dr. Huxham, in Phil. Trans. for 1724, vol. xxxiii. The patient was a man aged forty, of a spare bilious habit, who had an attack of jaundice, followed by a paroxysm of colic, this last being produced by

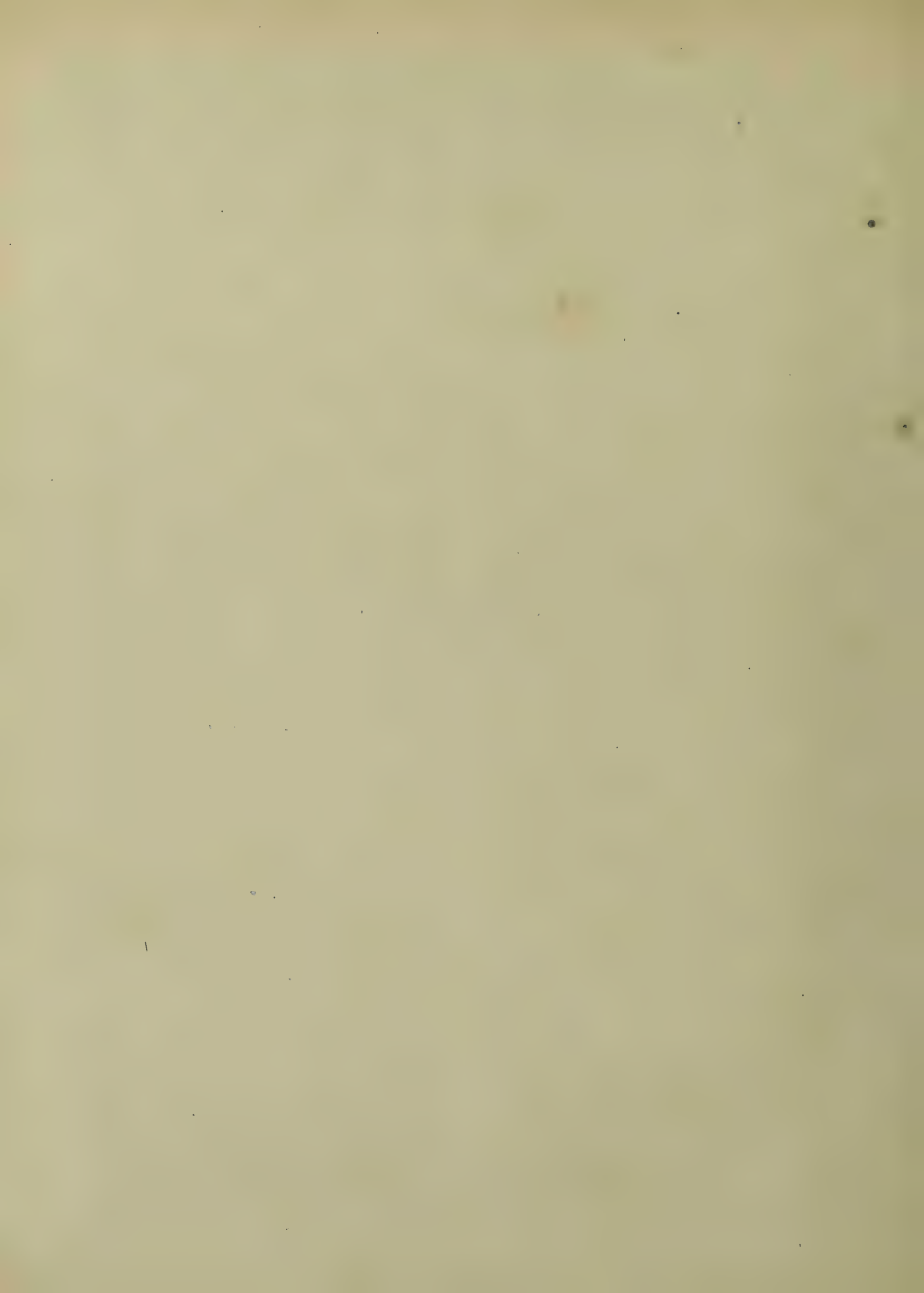
drinking too freely of cider. Among other medicines was given a bolus, containing a scruple of jalap, eight grains of calomel, and a grain of opium. Copious dejections followed, and a few hours afterwards the patient complained of pain and swelling in the fauces, spat up a little thick brown saliva, which was soon considerably increased in quantity, of a deep colour, resembling greenish bile, though somewhat thinner. This flux of green and bilious saliva continued for about forty hours, during which time the quantity discharged amounted to four pints. The colour of the saliva then changed to yellow, like a solution of gamboge, with an increase rather than a diminution of the quantity. It continued of this colour for the space of forty hours more, after which it gradually became pellucid, and the salivation ceased as suddenly as it came on. During the flow of the saliva, the teeth and fauces were as green as if they had been stained with verdigris, and the teeth retained the same colour for a fortnight after the ptyalism had ceased. The patient had a few years before been suddenly attacked by a spontaneous salivation, so excessive as to endanger his life. In the present instance, therefore, it is probable that the dose of calomel co-operated with the peculiarity of the constitution in exciting the discharge: but, whatever was its cause, it proved critical both of the jaundice and the colic; for, from the moment it took place, the pain of the bowels ceased, and the greenish colour of the skin began to subside, the urine being at the same time secreted more abundantly, and of a blackish hue.

A very remarkable case is related in the London Med. and Phys. Journal, vol. xxx. p. 37, by Dr. Yeats. The subject was a female, in whom a ptyalism was excited for the purpose of improving the state of the menstrual discharge. This attempt, however, brought on very great derangement of the digestive organs, manifested by immediate rejection of every kind of medicine or aliment, by acid gastric secretion, &c. The cure of this state resisted every means suggested by the experience of Dr. Yeats, until he again induced ptyalism, when every unpleasant symptom abated, and the patient gradually and perfectly recovered. Remarkable as this case appears, and difficult as it is to trace the mode of curation established by the resuscitation of ptyalism, we perfectly coincide with Dr. Yeats in attributing the recovery of his patient to that process. The reader will meet with some important remarks on this subject in the Med. Observ. and Enquiries, vol. iii. by Sylvester and Dobson, and by Bardsley in the Med. Reports.

6. Pt. sympathicus, or mouth-watering. A watering of the mouth experienced by some at the sight or smell of food is an instance of its production by nervous influence. Its occurrence in fever and other complaints, where it seems to produce very salutary effects, shows that it sometimes becomes spontaneously the seat of translated or substituted disease. Mechanical pressure, as is well known, excites very much the action of the salivary glands; as in chewing, sucking, &c. It is on this principle that it has been recommended to roll a marble, or small bullet, in the mouth, for the purpose of alluaging thirst; the muscular motion necessarily involved in this act, eliciting copious salivary secretion, and consequent moistening of the fauces. Tobacco likewise, and all other local irritants, are capable of inducing this increased secretion.

7. Pt. mellitus, or sweet spittle. This is generally connected with disorder of the stomach: its remote causes are probably identical with those of Diabetes mellitus. Dr. Good observes of it, that the secretion of sweet or mawkish saliva is not only for the most part free, but accompanied with nausea, and other symptoms of indigestion; and is probably what Sauvages intends by his first species, P. nauseosus, or a saburra nidorosa. It is relieved by magnesia and other absorbents; but will often only yield to an emetic, followed by warm stomachics. It may be necessary, no doubt, to vary the treatment according





+ Shipman's care of the Chandler.

cording to the nature of the gastric disturbance. This affection is also occasionally sympathetic, as in dentition sometimes occurs, and as a sequel or crisis to various other affections.

2. *Ptyalismus chronicus*. When, from the causes we have detailed, an excited state of the salivary glands has continued long, a chronic inflammation is set up, and altered and vitiated states of the secretion take place. This naturally induces much derangement of the process of digestion, and hence demands more particular attention. In addition to the constitutional remedies required in the acute stage of ptyalism, we are now called upon to adopt the application of topical remedies, for the purpose of altering the action of the secretants. Of these, acid and astringent gargles are the most useful. Blisters behind the ears have also been found efficacious. Dr. Robertson has detailed, in the *London Medical and Physical Journal*, vol. xxxiii. some cases successfully treated by the oxyde of bismuth. In the *London Medical Transactions*, vol. ii. a curious case is mentioned, in which a very long-continued and troublesome ptyalism was cured by chewing dry bread and swallowing it.

3. *Ptyalismus iners*, drivelling or flaverling. This consists in an involuntary and distressing flow of saliva from sluggishness of deglutition or other causes, *without increased secretion*. It has three varieties: α , infantilis; β , senilis; γ , moriæ.

This affection is distinguished from the other species of ptyalism by the circumstance, that, while in the former increased secretion (arising either from an excitement or dilated state of the secreting vessels) is present, in this the redundancy of fluid owes its existence to *diminished absorption*, and to the want of that almost continual deglutition by which this secretion is removed from the mouth.

The second variety is particularly attendant on paralytic patients. This circumstance is probably connected with the state of the brain; an idea which obtains confirmation from the contemplation of the third variety, with which debility of understanding is thus curiously connected. To trace the relation which exists between these states would form a subject of much interest and difficulty. As it does not appear however, that, in the present state of our knowledge, this affection is under the control of the medical art, we shall wave all further discussion of the subject.

Genus III. *Dysphagia*, [from *dys*, bad or imperfect, and *phago*, to eat or swallow.] Pain or obstruction in swallowing. This genus includes five species.

1. *Dysphagia constricta*, or difficulty of swallowing from permanent diminution of the calibre of the œsophagus. This affection arises from a thickened state of the mucous membrane, from induration of the same, from its acquiring a cartilaginous structure, from ossifications, excrescences, scirrhous or calculous concretions, &c. It may be produced likewise by tumors pressing on the canal, when these arise from neighbouring parts. Ulcers likewise, or other solutions of continuity, by destroying the play of the circular fibres, prevent or impede deglutition. Among other causes, Dr. Parr, in his *Medical Dictionary*, mentions the concretion of mucus, and supports it by the testimony of Hoffman. We need scarcely observe, that, from the nature of the œsophageal structure, this circumstance cannot occur, unless indeed the natural secretions are very much altered; an alteration which would imply previous diseased action for a long period, and hence is unlikely to be removed by diluents and nitrous powders, as the above-mentioned author has recommended. The case in question was probably one of the kind described by Dr. Baillie in his work on *Morbid Anatomy*, in which coagulated lymph was found in great quantity. The obstruction of swallowing is most frequently caused by mechanical injury, as pins or other substances accidentally introduced.

From whichever of these numerous causes impeded

deglutition may arise, the removal of the cause itself will be the first indication of cure. Hence, in all cases where tumors in or around the pharynx exist, the removal or diminution of those morbid accumulations must be attempted. This is, however, no very easy task, because, in the first place, the kind of tumor or excrescence is seldom to be discriminated when in the canal; and those which arise externally, as bronchocele, &c. are often difficult of cure. In these cases, while we use every endeavour to remove the disease according to particular indication, the patient must be supported with nourishing clysters or with liquid aliment passed into the stomach by means of a flexible tube. By this contrivance, according to the testimony of Dr. Good, a lady was supported for twenty years.

Difficult as tumors of the œsophagus are to remove, we should not neglect every probable means of relief; for sometimes the breaking of an abscess and the discharge of its contents has been of great service. In the History of the Royal Medical Society in Paris for the year 1776, we are told, that a young lady, aged sixteen years, after being troubled for about three months with a spasmodic cough, began to have a difficulty of swallowing, which increased so fast, that after a very short time she was incapable of taking any nourishment by the mouth, so that, for the space of three months, life was supported solely by clysters. Mercurial and other frictions were employed without effect. At length M. Macquart, reflecting on the case, and conjecturing that an encysted tumour existed in the œsophagus, and that it might probably be now in a state of suppuration, he resolved to administer some substance, which, by its weight, might occasion a rupture of the sac. For this purpose he prescribed an ounce of crude mercury, mixed with the yolk of eggs, to be swallowed every three hours. This remedy was taken, and the patient, soon after she had swallowed the second dose, brought up a considerable quantity of pus. From this moment she was able to swallow broth, and by proper care recovered. An emetic, in cases when complete stoppage does not happen, might be prescribed with equal advantage. According to Dr. Parr, when scrofulous indurations happen about the œsophagus, the ungt. hydragryri, rubbed on the neck over the induration, or small doses of calomel, have often been of singular efficacy, especially if used early after the attack of the disorder. If the case is of more considerable duration, he thinks the mercurials should be given, so as to excite and support a moderate ptyalism for some time.

Many are the contrivances for removing foreign bodies sticking in the passage to the stomach; but it would often be better to leave the case to nature, than to irritate so tender a part, which must be the effect of such attempts. If the substance can be reached with the fingers, or with the forceps, the extraction is easy. When pins, fish-bones, or similar bodies, stick across the gullet, some recommend a wire with its end turned up like a hook, to be passed below these bodies, and then turned so as to bring them up. Pins, and other sharp bodies, when they have stuck in the throat, have been returned by swallowing a piece of tough meat tied to a strong thread, and then pulled up again. If the detained body may more safely be pushed down, the probang is a useful instrument. It hath frequently happened, that, though indigestible bodies have been swallowed, no inconvenience hath arisen from them. (See *Lond. Med. Transf.* vol. iii. and *Med. Museum*, vol. ii.) If the bodies cannot be easily moved up or down, endeavours should not be continued long, lest inflammation come on. If the patient can swallow, a large draught of water may be taken, a practice the more necessary if the substance wedged in possess any great degree of solubility; or, if he cannot swallow, an assistant may inject some fluid into the gullet, which will sometimes loosen the impacted body. When these endeavours fail, the patient must be treated as if labouring under an inflammatory disease; and the same

H h treatment

treatment will be required if an inflammation take place in the part, after the obstructing body is removed. A proper degree of agitation has sometimes succeeded in removing the obstructing body better than instruments. Thus a blow on the back hath often forced up a substance that stuck in the gullet or windpipe. Pins, which have stuck in the gullet, have been discharged by riding on a horse or in a carriage.

In the London Medical Observations and Inquiries, vol. iii. is an account of a small fibre of a feather being swallowed, and extracted by means of a probang with a thread or two passing from one end to the other, and fastened to the sponges which were connected with each end of this instrument. For some more complicated methods of extracting these substances, see the article SURGERY.

Independently of the causes just mentioned, Dr. Baillie has observed, that the œsophagus is liable to stricture, produced by the contraction of its muscular fibres at some particular part. This disease is most common in women whose constitutions are delicate, and much subject to nervous influence. When such a disease is examined in the dead body, the œsophagus is found to be more or less contracted in some part of it, and it feels harder than usual, as all muscles do in a contracted state. There is no appearance of diseased structure usually combined with it; yet this contraction might lay the foundation of a permanent and even a fatal disease. The muscular fibres of the œsophagus might so press on the inner membrane, as to excite inflammation in it, which might advance to suppuration, and would most probably terminate fatally.

A very unusual stricture of the œsophagus has been noticed by the same author. It consisted in its inner membrane being puckered together, so as to form a narrowness of the canal at a particular part. The canal at that part was so narrow, as hardly to allow a common garden-pea to pass. There was no appearance, however, of diseased structure in the inner membrane which was so contracted, and the muscular part of the œsophagus surrounding it was perfectly sound. This disease was very slow in its progress; for the person in whom it took place had been for many years affected with a difficulty of swallowing, and could only swallow substances of extremely small size.

These cases have been much relieved by an attention to the state of the stomach and intestines, though not so much so as in the spasmodic affections we shall have occasion presently to notice. But we shall subjoin a case wherein a cure was very happily performed by mechanical means. It was communicated by Dr. Stevenson, of Kegworth, to the Medical and Physical Journal, vol. viii.

"Mrs. Wagdin, Trent Lock, Derbyshire, the subject of the subsequent communication, is forty years of age, of a thin spare habit, and irritable temperament. She dates the origin of her complaints from a violent attack of cynanche maligna near twelve years ago, to the contagion of which she was exposed almost immediately after her recovery from a severe parturition. The most prominent features of her disorder from that period till the expiration of more than three years, were a slight though progressively-increased difficulty of swallowing, accompanied with some degree of soreness, and an augmentation of the salivary excretion. With a view to the palliation of these symptoms, she was directed to have occasional recourse to aperients, leeches, blisters, and gargles. By this time, however, the difficulty of deglutition had become so alarmingly exasperated, that she was no longer capable of swallowing solids, even of the magnitude of a pea. In this situation she put herself under the direction of Dr. Smith, late of Nottingham, who prescribed mercurials. A most severe salivation was the consequence, under which she laboured for the protracted space of three months. By this method the symptoms were so considerably alleviated, that she was capable once more of swallowing soft and well-comminuted solids. But, though

thus rescued from her impending fate, the remedy was productive of effects no less formidable. I allude to excessive debility, frequent syncope on the least motion, colliquative sweats, her system being greatly emaciated, and a prey to hysterical paroxysms. By the aid of proper dietetical management, as the complaint it was vainly hoped was subdued, her attendants flattered themselves she might still survive even this severe contest. Alas! no sooner were her drooping spirits reanimated by the sensible acquisition of renovated vigour, than the fond expectations she had cherished became depressed by a visible return of her former impediment to swallowing.

"During the last seven years, she found herself reduced to the sad necessity of supporting a miserable existence by means of liquid aliment, such as soups, milk, &c. I saw her for the first time in the beginning of October, 1801. She had then a dejected emaciated appearance, a quick pulse and other hectic symptoms, and was harassed by an almost incessant ptyalism, more particularly urgent during the earlier part of the day, at which time she was always hoarse. The breathing was much incommoded when she reclined on a sofa or bed, which concurred with the other symptoms in rendering her nights very restless. Her bowels were habitually inactive. There was not any external tumefaction of the thyroid gland, nor could the obstructed part be observed by inspecting the fauces.

"Dysphagia, in this inveterate stage, has I believe hitherto almost invariably bidden defiance to the best-directed medical expedients; and the singularity of the case will, I trust, be deemed a sufficient apology for the minuteness of its description. I proposed to her, as a dernier resort, to have recourse to mechanical dilatation, a practice none of the faculty had before even suggested. Sensible that, if not speedily relieved, she must fall a victim to this relentless disease, she agreed to submit implicitly to any plan from the adoption of which the smallest prospect of success might rationally be anticipated.

"I first cautiously introduced a common bougie into the lower part of the pharynx. In this place, a powerful resistance that occurred, and which occasioned my instrument, on the application of somewhat forcible pressure, to bend in various directions, seemed to confirm my theory of the nature of the disease. Thus foiled, I ventured to substitute a small probang copiously charged with oil. It was not without steady and continued efforts that this operation was made to dilate the stricture. After having overcome this obstacle, the instrument descended without much difficulty till it reached, I supposed, the lower portion of the œsophagus near the cardia, when a second impediment announced the existence of another stricture. The same measures however at length availed in enabling the probang also to force a passage through this contracted part, when it suddenly passed into the stomach. The instrument having been deliberately withdrawn, as soon as Mrs. W. had somewhat recovered from the irritation and fatigue produced by this, I gave her some gruel which stood ready, in order that she might ascertain, by sipping leisurely a small quantity, whether any benefit had accrued from the operation. Upon attempting to swallow, she found the former impediment removed, and continued drinking till she had consumed at least half a pint of the liquid with the greatest facility as to the power of deglutition, though of course some soreness must have existed. Apprehending that the passage would not, by the small instrument employed, be sufficiently dilated to admit of the ready ingurgitation of solids, the operation was repeated with a larger instrument three successive times, a few days being suffered to intervene between each, in order that the topical pain might be allayed by the exhibition of oily liniments and aperients, and by fomentations. The fourth operation enabled her to swallow solids without experiencing the smallest inconvenience, a faculty she still continues to exercise in its fullest extent.

"As a further testimony of the efficacy of mechanical means in the radical cure of this tremendous disease, permit me shortly to add, that the only daughter of the above-mentioned lady, aged twelve years, had from her earliest infancy, indeed from her birth, laboured under *Dysphagia constricta*. Her constitution partakes much of the nervous irritability of her mother. The want of substantial food (for her existence had been supported by the suction of liquid aliment alone) tended obviously to retard the physical evolution of her system. The complete success which had crowned my efforts in the case of Mrs. W. naturally created an anxious wish in the parents to have the same means resorted to in the present instance; of the absolute necessity of which my intelligent little patient was fully satisfied, and readily consented to undergo the operation, from the sanguine expectation of deriving equal benefit. It is with sentiments of the greatest satisfaction I am authorised to state, that the expedient has proved altogether salutary and efficacious. The texture of her body, which previous to the operation had ever been extremely delicate, has acquired a wonderful degree of renovated vigour; and her spirits, formerly subject to great depression, have obtained such a healthy flow, that she can now engage in juvenile amusements with the greatest cheerfulness and vivacity."

2. *Dysphagia atonica*, or the difficulty of swallowing from debility of the muscles concerned in that act, is perhaps chiefly distinguished from the other species of this genus by the circumstances, that the obstruction seems continual, thus different from the spasmodic; and that solids are more easily swallowed than liquids, which does not obtain in the first species noticed. It is often sympathetic of a morbidly-distended state of the muscular coat of the stomach, dependent on the interruption of nervous influence. If even idiopathic, it should be combated by gentle stimulants, among which bitters perhaps hold the most favoured rank. The most interesting case in illustration of this disease with which we are acquainted, was published in the 3d volume of the *Medical Observations*. The part was preserved in Dr. Hunter's collection. The pharynx was, in the case in question, dilated at its lower extremity, into a pouch of considerable size, which passed behind the œsophagus. This pouch began to be formed in consequence of a cherry-stone having rested there for some time, which had made a kind of bed for itself. It remained in that situation for three days, and then was brought up by a violent fit of coughing. A part of the food always rested afterwards in the cavity made by the cherry-stone, by which it was gradually enlarged. At length, in the course of about five years, the cavity was enlarged into a bag of a considerable size, sufficient to contain several ounces of fluid. This bag passed down a good way behind the œsophagus, and the œsophagus necessarily acquired a valvular communication with it. In proportion as the bag enlarged, this valvular communication would become more and more complete, till at length every kind of food must have rested in the bag, and could not pass into the œsophagus. In this way the person was destroyed. The lower end of the pharynx is, perhaps, the only part of the canal where such an accident could happen. The pharynx is not contracted gradually, so as to lose itself insensibly in the œsophagus, but contracts itself rather suddenly at the lower end. Hence a little recess is formed, in which an extraneous body may occasionally rest. This is necessarily at the posterior part, so that, if the recess should be enlarged into a cavity, it must pass behind the œsophagus.

Blisters have been found of use in the paralytic state of the muscular fibres of the œsophagus; and electricity has been found successful, with the occasional stimulus of the probang. The latter means we should strongly recommend.

3. *Dysphagia globosa*, the *globus hystericus* of Darwin, and the nervous quinsy of Heberden, is a difficulty of

swallowing from wind in the stomach, spasmodically compressed into the feeling of a ball ascending into the œsophagus, and producing a sense of strangulation. Irritation of the nerves appears to be always connected with it. This may be produced, in its first origin, by the many and various causes acting on the nervous extremities. In the womb and the alimentary canal, the majority of these causes are applied; while in many instances the brain itself is primarily and immediately acted on by mental emotion, and propagates through the nervous system its disturbed state. According, then, to the structure from the diseased action of which this phenomenon is derived, it is accompanied by the symptoms peculiar to disorders of that structure. Hence the variety of appearances connected with this disease bid defiance to arrangement, and simulate, in their proteiform and varying character, many of the most serious maladies; and hence our plan of cure must vary according as the stomach, the brain, or the uterine system, is primarily affected.

As far, however, as regards the *globus hystericus* itself, we cannot consider it as any thing but a symptom of the irritation before described. We give our nosologist's own reason for inferring it, which it will be seen does not at all impugn our opinion. He says;—"This (*Dysphagia globosa*) is by no means a mere symptom of hysteria, as is often supposed; for it as frequently occurs under the influence of various passions, as grief, fear, and anger; and is a frequent attendant upon the hypochondriacal diathesis. It is, however, for the most part, a sympathetic affection, concatenating with the state of the stomach." In speaking of *Dyspepsia* and *Hysteria*, we shall detail this subject in full: for the present we may remark, that, for the removal of the mere symptom, stimulants of the stomach are the most appropriate palliatives.

4. *Dysphagia uvulosa*, or swallowing impeded by elongation of the uvula. This may arise from simple relaxation, from inflammation, or ulceration. It is attended with uneasiness and difficulty in swallowing, cough, nausea, commonly a continual spitting, sometimes a difficulty of breathing, and a stammering or faulty articulation. There are two varieties, differing as they arise from inflammation or from relaxation. In the first, the uvula is swelled, hot, acutely painful, of a red or livid colour, and falls down in an altered form. Sometimes suppuration comes on, and the difficulty both of swallowing and breathing is more considerable than in the subsequent variety. When this complaint is very violent, there is apparent danger of strangulation. It is cured by bleeding and purging; gargling with subastringent liquids, and sometimes scarification. In the second variety, the uvula, preserving its natural colour, is relaxed, elongated, pale, or cedematous.

It is remarkable that, on some occasions, the irritation arising from this elongation of the uvula is only felt when the mucous membrane of the stomach and fauces is in an irritable state. A medical man applied to an eminent lecturer on surgery for the purpose of having a portion of the uvula taken off. The lecturer, who had on some former case remarked the fact just noticed, eluded the performance of the operation for some days, and during that time directed opening medicines, &c. to be taken; the consequence of which was, that the patient felt in a little while no inconvenience from his elongated uvula, although on examination no diminution of its size was apparent. The treatment of the relaxed uvula consists in the use of stimulating and astringent gargles, and the correction of morbid states of the mucous membrane of the alimentary canal. When these measures are unsuccessful, the extirpation of a portion of the uvula is advisable; for which, see *SURGERY*.

5. *Dysphagia linguosa*, swallowing obstructed or troublesome from magnitude or protrusion of the tongue. This species has two varieties: α , exertoria; β , ranula.

In α exertoria, the tongue is protruded, often with enlargement of its substance. As an idiopathic and curable

rabile affection, it is manifested most frequently in children. It happens sometimes immediately after birth; at others in the first years of infancy. In both cases this deformity, be it from birth or accidental, degenerates gradually, when it is not remedied in its beginning, into an habitual disease, which increases with age; and many have been afflicted with this deformity for life. An author of the sixth century, Gaspar Peucer, is the first who has said he had seen children come into the world with the tongue out of the mouth, and "hanging on the chin, like that of a calf recently slain." Such is his expression. He considered this vicious conformation as a phenomenon, in some measure foreign to the art; as an incurable monstrosity. The same case has been observed, with a little more exactness, by Zacchias; this physician speaks of having seen, in 1628, at Rome, a new-born child, very strong and well formed, who had the tongue out of the mouth, the length at least of three fingers breadth; it was a little wider and a little thicker than it usually is at that age; when the child moved it, and drew it in, one could judge how much it exceeded the opening of the mouth. Nevertheless, it sucked pretty well, provided the nurse's nipple was large and elongated; for it could not execute the same function with another nurse, whose nipple was short and thin. Arrived at the age of about fourteen months, it ate and drank pretty freely, although it had, night and day, a portion of the tongue out of the mouth; it began even to pronounce some words, when it died, without Zacchias having known the cause of its death.

The first appearance of the disease is generally found after birth, though instances (see the Memoir of Citizen Laffus in the first volume of the National Institute of Science and Arts in France) are not wanting to show that the disease has existed before birth. In either case, however, the point of the tongue tumefies, is prolonged by little and little out of the mouth, till it is found extending even upon the chin. Suffering the child to suck much increases this elongation; and, in proportion as the tongue extends and tumefies, it draws with it, by its weight, the os hyoides and the superior part of the larynx, which contributes to render deglutition still more difficult. The continual and very-abundant effusion of saliva, which is no longer retained in the mouth, induces thirst and dryness of the throat; the incisive and canine teeth of the lower jaw are thrown forward, and partly quit their alveoli; the tongue, rubbing against these displaced and worn teeth, excoriates and bleeds; the lower jaw always hangs down, and projects a little forward; the under lip reverts, and projects; the superior edge of the lower jaw is hollowed by degrees in its middle, deprived at length of teeth by the pressure and motion of the tongue, which forms there a kind of furrow to lodge itself; in fine, this organ, at times more, at others less, tumefied, hangs constantly out of the mouth. Such are the symptoms which characterise this disease when it is inveterate; at the same time, it does not absolutely prevent speech and deglutition; but the sound of the voice is harsh, and deglutition is always more or less restricted.

The first attempts which were made to cure this disease were by amputating the protruded part of the tongue; and the fear of hæmorrhage alone restrained the hands of the surgeons of the fifteenth century. It seems that we have no occasion for this violent practice; for it has been shown by Laffus, in the Memoir above mentioned, on the clearest grounds, that, in nine cases out of ten, the protruded tongue is reducible by gradual pressure, and that a bandage so placed as to keep the mouth shut will generally be sufficient to cure the disease. This, however, can only apply to those cases in which simple congestion or inflammation is present, in consequence of the return of blood being prevented by the unnatural position of the organ. Of course, when degenerations of structure have occurred, the morbid enlargements will require the application of ligatures or extirpation with the knife. See SURGERY.

β. D. ranula, is an intumescence under the tongue, named from its situation in the *venæ raninæ*, or perhaps from its altering the voice of the patient. This tumour is seated on either side of the frænum. It is round, of a greyish colour like an hydatid, soft, compressible, indolent, and, in the early stage, almost transparent. At first it is of about the same size as a nut or a cherry; but by degrees its volume becomes much more considerable. This also is very frequently met with in young children: its occurrence in adults is more uncommon. It consists of a successive dilatation of the excretory tube of the submaxillary or else of the sublingual gland, the orifice of which duct is by some cause or another stopped up, or obliterated; so that the confined saliva accumulates, becomes viscid, and ceases to flow in the usual manner. In proportion as the ranula increases, the incipient state of it having been neglected, its enlarged size raises up the tongue, and forces it backward; the consequence of which is, that mastication, deglutition, and respiration, are obstructed. The voice becomes indistinct and hoarse; the motion of the tongue is restrained: it cannot be put out of the mouth. By degrees, the incisive and canine teeth of the lower jaw are loosened; the layer of muscles, composing the lower parietes of the mouth, is depressed; and the swelling, having attained a considerable size, makes a very manifest prominence beneath the chin. In this advanced stage, that is to say, when it has existed ten or twelve years, as practitioners occasionally see instances of, the appearance of the swelling is quite altered from what it originally was. The tumour is now hard, elastic, painful, and ulcerated: it is as large as a turkey's egg, and not situated at the side of the frænum, but anteriorly under the tongue, to which it is closely adherent. The mouth emits a very fetid smell; and the breathing is so much obstructed, that the patient, through fear of suffocation, is obliged to lie with his mouth wide open, when he goes to sleep.

While a ranula is recent, the fluid which it contains is a viscid saliva, resembling the white of egg, but sometimes of rather a yellow colour. In time it is gradually changed, becoming turbid and puriform; and, in certain instances, soft, friable, greyish, concretions, from the size of a pea to that of an almond, commonly called salivary calculi, are found in the kind of cyst, which is produced by the dilatation of the salivary duct. These calculi essentially consist of a large proportion of the phosphate of lime, united with a mucilaginous substance.

The tumour is often of a scrofulous kind, and contains a thick purulent matter. It has been styled a *hydatid*, and is said by Siebold to be an expansion of Wharton's duct. When it grows suddenly, both the speech and swallowing are impeded, with much pain; but it generally increases gradually, and its effects are not violent. Instances, it is said, have occurred of these tumours degenerating into cancers; but this is highly improbable. They are with great difficulty dispersed or brought to suppuration, and generally require the knife for their removal. And indeed it has been asserted on respectable authority, that a ranula, whether recent or inveterate, cannot be cured except by a surgical operation. See SURGERY.

The species is found occasionally as a symptom in bronchocele and other causes of external pressure.

Genus IV. *Dipsosis*, [from *δίψω*, to be thirsty.] Morbid thirst; the desire for drinking excessive or impaired. This genus contains two species.

1. *Dipsosis avens*, constant thirst with acidity of the fauces. This species is generally found in fevers, fluxes, dropsy, &c. Many cases are on record in which this affection has reached an astonishing height. There are some authentic records which seem to show that it is an idiopathic disease. See the London Medical Journal, vol. iii. a case by Dr. Dyce; and vol. iv. of the same work, the cases of Dr. Domeier and Twaam Peal. In these, aridity of the fauces and pharynx, the probable

cause of thirst, was present, excepting the last, almost without constitutional disturbance.

The best treatment appears to be to evacuate the bowels, and the use of mineral acids. Of course, when the disease is traceable, and we have little doubt that it is so in all, to excessive depletion by sweat, urine, &c. to nervous derangement, inflammation of the stomach, or any other diseased state, the correction of that state demands our first consideration. For an astonishing case, in which two hundred pints of wine, and the same of water, were drunk daily, see the *Eph. Nat. Cur.* cent. vii. and for another, in which eighty measures of liquid were taken in daily, see Binner in the *Act. Helvet.* vii. p. 16.

2. *Diplois expers*, or constant want of thirst. Cullen was of opinion, that this always indicated an affection of the *senforium commune*. Sauvages, however, relates two cases of patients in whom it formed an original disease: the one a learned and excellent member of the academy of Toulouse, who never thirsted, and passed whole months without drinking in the hottest part of the summer; the other a woman, who for forty days abstained altogether from drinking, not having had the smallest desire, and who was nevertheless of a warm and irascible temperament. See another case that continued for some years, in the *Ephem. Nat. Cur.* cent. v. and vi.

Genus V. *Limosis*, [from *λῆσις*, hunger.] Morbid Appetite; i. e. excessive or depraved. The following are the seven species, with their varieties.

1. *Limosis avens*, insatiable craving for food. We have three varieties of this species.

α. *L. syncoptica*, from a feeling of faintness and inanition. This disorder, we believe, is seldom idiopathic: it more frequently depends on very general gastric disturbance, and is certainly connected with deficient action of the absorbents. In the *Phil. Trans.* vol. xliii. 1745, is a singular case related by Dr. Mortimer, of a boy twelve years old, who, from a feeling of inanition, had so strong a craving, that he would gnaw his own flesh when not supplied with food. When awake, he was constantly devouring, though whatever he swallowed was soon afterwards rejected. The food given him consisted of bread, meat, beer, milk, water, butter, cheese, sugar, treacle, puddings, pies, fruits, broth, potatoes; and of these he swallowed in six successive days 384lbs. 2 oz. avoirdupois, being 64lbs. a-day on an average. The disease continued for a year.

It is occasionally produced by worms. See a curious case of Dr. Burroughs, *Phil. Trans.* xxii. 1700; in which the patient from this affection was rendered capable of devouring an ordinary leg of mutton at a meal for several days together, and fed greedily also on sow-thistles and other coarse plants. Voracity is, however, by no means an unfrequent symptom in worms.

β. *L. helluonum*, from habitual indulgence in large and frequent meals. Habit, induced by idleness, is undoubtedly the most frequent cause of gluttony. The unoccupied person perpetually eats, unless disease impedes this sensual gratification. Sometimes, however, it seems that an idiosyncrasy of a peculiar nature disposes to excessive appetite. In a case we shall presently quote, not only the father, but nine sons, were remarkable for the voraciousness of their appetite. This affection can scarcely be called a disease; for, without entering into any discussion on the cause of hunger, we may remark that that sensation evidently depends on some action of the stomach. Whatever that may be, if it is increased without pain or derangement of the digestive or any other function, it is evident that we have no more reason for calling this a disease than the great strength which we remark in some men, and which evidently depends on excessive power of the muscles. Hence it appears how absurd those attempts must be which have been made to remove this idiosyncrasy by acids, opium, &c. in a word by any treatment

but the moral. The unfortunate individuals afflicted with this propensity are seldom so robust as those of more moderate appetite; and they seldom, according to the testimony of M. Percy, live beyond the age of forty years. In most of the cases on record, the skin appears to be the part whence the surplus of provision is thrown off; the stools and urine being commonly in the ordinary proportion.

It would be improper, in a work of this sort, to pass over the most remarkable case we are acquainted with; although, from its frequent quotation, it is probably known to most of our medical readers.

The case is that of the famous *Tarare*, who was known to all Paris, and who died at Versailles about the year 1800, at the age of twenty-six years. M. le Baron Percy, who saw Tarare, and who made some investigations respecting this singular personage, has given us the history of him, in a very curious Memoir on Polyphagy. At seventeen years of age, Tarare weighed only one hundred pounds; and was already able to eat, in twenty-four hours, a quarter of a bullock of that weight. Having left his parents when very young, (he was of the environs of Lyons,) sometimes begging, sometimes stealing, to obtain subsistence, he attached himself to one of the mountebank shows on the boulevards. One time, on the stage, he defied the public to satiate him; and ate in a few minutes a pannier-full of apples, furnished by one of the spectators; he swallowed flints, corks, and all that was presented to him. At the commencement of the war Tarare entered into the army; he served all the young men in easy circumstances in the company, did all their jobs for them, and ate up the rations they left for him. Famine nevertheless gained upon him; he fell sick, and was taken to the military hospital at Soultz. On the day of his entry he received a quadruple allowance: he devoured the food refused by the other patients, and the scraps about the kitchen; but his hunger could not thus be appeased. He got into the apothecary's room, and there ate the poultices, and every thing he could seize. "Let a person imagine," says M. Percy, "all that domestic and wild animals, the most filthy and ravenous, are capable of devouring; and they may form some idea of the appetite, as well as the wants, of Tarare." He would eat dogs and cats. One day, in the presence of the chief physician of the army, Dr. Lorence, he seized by the neck and paws a large living cat, tore open its belly with his teeth, sucked its blood, and devoured it, leaving no part of it but the bare skeleton; half an hour afterwards he threw up the hairs of the cat, just as birds of prey and other carnivorous animals do. Tarare liked the flesh of serpents; he managed them familiarly, and ate alive the largest snakes, without leaving any part of them. He swallowed a large eel alive, without chewing it; but we thought we perceived him crush its head between his teeth. He ate, in a few instants, the dinner prepared for fifteen German labourers: this repast was composed of four bowls of curdled milk, and two enormous hard puddings. After this, the belly of Tarare, commonly lank and wrinkled, was distended like a balloon: he went away, and slept until the next day, and was not incommoded by it. M. Comville, the surgeon-major of the hospital where Tarare then was, made him swallow a wooden case, enclosing a sheet of white paper: he voided it the following day by the anus, and the paper was uninjured. The general-in-chief had him brought before him; and, after having devoured in his presence nearly thirty pounds of raw liver and lights, Tarare again swallowed the wooden case, in which was placed a letter to a French officer, who was a prisoner to the enemy. Tarare set out, was taken, flogged, imprisoned; voided the wooden case, which he had retained thirty hours, and had the address to swallow it again, to conceal the knowledge of its contents from the enemy.

They tried to cure him of this insatiable hunger, by the

use of acids, preparations of opium, and pills of tobacco; but nothing diminished his appetite and his gluttony. He went about the slaughter-houses and bye-places, to dispute with dogs and wolves the most disgusting aliments. The servants of the hospital surprised him drinking the blood of patients who had been bled, and in the dead-room devouring the bodies. A child fourteen months old disappeared suddenly; fearful suspicions fell on Tarare; they drove him from the hospital. M. Percy lost sight of him for four years: at the end of this time he saw Tarare at the civil hospital at Versailles, where he was perishing in a tabid state. This disease had put a stop to his gluttonous appetite. He at length died in a state of consumption, and worn out by a purulent and fetid diarrhoea, which announced a general suppuration of the viscera of the abdominal cavity. His body, as soon as he was dead, became a prey to an horrible corruption. The entrails were putrefied, confounded together, and immersed in pus: the liver was excessively large, void of consistence, and in a putrescent state; the gall-bladder was of considerable magnitude; the stomach, in a lax state, and having ulcerated patches dispersed about it, covered almost the whole of the abdominal region. The stench of the body was so insupportable, that M. Tessier, chief surgeon of the hospital, could not carry his investigation to any further extent.

Tarare was of a middle-sized stature; his habit of body was weak and slender; he was not of a ferocious spirit; his look was timid; the little hair he had preserved, although very young, was very fair, and extremely fine. His cheeks were fallow, and furrowed by long and deep wrinkles: on distending them, he could hold in them as many as a dozen eggs or apples. His mouth was very large; he had hardly any lips; he had all his teeth; the molares were much worn, and the colour of their enamel streaked like marble; the space between the jaws, when they were fully separated, measured about four inches: in this state, with the head inclined backwards, the mouth and œsophagus formed a rectilinear canal, into which a cylinder of a foot in circumference could be introduced without touching the palate. Tarare, says M. Percy, was constantly covered with sweat; and from his body, always burning hot, a vapour arose, sensible to the sight, and still more so to the smell. He often stank to such a degree, that he could not be endured within the distance of twenty paces. He was subject to a flux from the bowels; and his dejections were fetid beyond all conception. When he had not eaten copiously within a short time, the skin of his belly would wrap almost round his body. When he was well satiated with food, the vapour from his body increased, his cheeks and his eyes became of a vivid red; a brutal somnolence, and a sort of hebitude, came over him while he digested. He was in this state troubled with noisy belchings; and made, in moving his jaw, some motions like those of deglutition. M. Percy never saw in him any signs of rumination. Tarare was almost devoid of force and of ideas. When he had eaten to a moderate extent, and his hunger only appeased, he was quick and active; he was heavy and sleepy only when he had eaten to excess.

Another case, very similar to the above, was brought into view about the same time at Liverpool that the first was at Paris; and the subject of it was also a soldier in the French service. This case is recorded in the article HUNGER, vol. ix.

These are our modern instances. A few ancient ones, to which some of our readers may perhaps not give full credit, are related under the word GLUTTONY, vol. viii.

The writer of the article Medicine in the Ency. Brit. has observed, that the pylorus being too large has sometimes caused this disease. We need not remark on the absurdity of this supposition; because every thing we know of these cases evidently shows that the digestion of food is properly performed, a fact quite incompatible with the idea that the pylorus lets the food pass too quickly.

In that case, indeed, the food would pass almost unchanged, and the stools would of course be unnatural, and in large quantity; appearances actually the reverse of those we have detailed. It is but justice, however, to state, that in lientery, a disease in which much food is taken, this conformation has been discovered.

7. *L. exhaustorum*, or voracity from exhaustion, as in the event of long abstinence, fevers, or excessive discharge. This can only be considered as a natural phenomenon rendered more manifest by its exciting causes being longer or more intensely applied. It affords us an opportunity of remarking on the danger of gratifying the appetite to its full extent after long abstinence, from whatever cause it may be produced. After long fasting, indeed, so many have been the fatal instances that have occurred from a full meal, that it is now popularly known and guarded against. After recovery from fevers and other exhausting affections, in which for a long period little or no sustenance has been taken, the same rule should in a minor degree be retained; but this regulation is not practised even by our professional brethren, who are often found to prescribe tonics and stimulants on the recovery of patients from febrile affections. The same regard to quality is perhaps equally essential; but, as the dietetic arrangements of convalescents will be fully treated of, and as no very great errors are commonly committed on this head, we shall pass it over, leaving as a general direction, the precept of Horace—

Nil nisi lene decet

Vacuis committere venis.

2. *Limosis expers*; loss or want of appetite, without any other apparent affection of the stomach. This is the genus *Anorexia* of Sauvages, Linnæus, Vogel, Sagar, and Cullen. Sauvages has thirteen species, which would here rank as varieties, but which, as Cullen justly observes, belong rather to the genus (in the present system, species) of dyspepsy. The following have perhaps a fair claim to be noticed.

a. L. defessorum; from too great fatigue, or the expectation being worn out by delay.

β. L. pathematica; from violent passion or other absorption of the mind. This is chiefly produced by severe grief, terror, ardent desire of obtaining an object of pursuit, or religious enthusiasm. Of the first we have an interesting case by Dr. Eccles, in the Edinburgh Medical Essays for 1720, of a young lady about sixteen years of age, who, in consequence of the sudden death of an indulgent father, was thrown into a state of tetanus, or rigidity of all the muscles of the body, and especially of those of deglutition, accompanied with a total loss of desire for food, as well as incapacity of swallowing it, for two long and distinct periods of time: in the first instance for thirty-four, and in the second, which occurred shortly afterwards, for fifty-four, days; "all which time (observes the writer) of her first and second fastings, she declared she had no sense of hunger or thirst; and, when they were over, she had not lost much of her flesh." Sauvages alludes to a similar effect produced by religious mania, and nymphomania. Nosol. ii. p. 805.

γ. L. protracta; enabling the system to sustain almost total abstinence for a long and indefinite time without faintness. As gluttony, or a desire to be perpetually eating, may be acquired by habit, so may fasting. The appetite of hunger seems, from various cases, almost as capable of being triumphed over as other appetites, and the body of being nourished by a very trifling quantity of food, and for many weeks, perhaps months, even by water alone. See Marcardier in Journal de Medecine, tom. xxxiii. Schenck, lib. iii. obs. 39. Waldschmid, Diss. de his qui diu vivunt sine alimento.

One of the best-known and best-marked examples in our own day, is that of Anne Moore of Tutbury. She was sufficiently ascertained to be a gross impostor, in pretending to be able to live without any food whatever: but

but she seems, from long habit, to have lost all pleasurable desire for food, and to have been capable of subsisting upon very simple liquids alone. She was at first induced to this habit by an extreme difficulty of deglutition; and she at length carried the habit so far as, *by deception*, easily to excite a general belief that she never swallowed any thing either liquid or solid. The intelligent committee, who so laudably formed themselves into a watch to determine the state of the fact, by a constant attendance upon her person for a month, sufficiently proved that she could not live for ten days without swallowing some portion of liquid. In their report they tell us, that "on the eighth day she was exceedingly distressed," her pulse had increased till it had amounted to 145 strokes in a minute; and "so far was she reduced on the ninth day, that she became in danger of expiring;" while a few hours afterwards, when she was compelled to confess the imposture she had practised, "the pulse at one wrist had entirely ceased, and the other seemed drawn to a thread." Yet "on the whole," say the committee, "though this woman is a base impostor with respect to her pretence of total abstinence from all food whatever, liquid or solid, yet she can, perhaps, endure the privation of solid food longer than any other person. It is thought by those best acquainted with her, that she existed on a mere trifle, and that from hence came the temptation to say that she did not take any thing. If, therefore, any of her friends could have conveyed a bottle of water to her, unseen by the watch, and she could have occasionally drunk of it, little doubt is entertained that she would have gone through the month's trial with credit. The daughter says, that her mother's principal food is tea; and there is reason to believe this to be true." Full Exposure of Anne Moore, the pretended fasting woman of Tutbury.

The case of Mary Thomas, a poor Welchwoman of Merionethshire, resembles in some points that of Anne Moore, but is still more extraordinary, because her morbid state was much feverish; and had been of longer duration, comprehending the greater portion of a century. And it occurred about the same time; as Mr. James Ward, a royal academician, published "Some Account" of both these extraordinary women, "accompanied with Portraits and illustrative Etchings," (1813.) for he visited them as an artist. From his narrative it appears, "that Mary Thomas has existed between seventy and eighty years almost without food; and certainly, according to evidence that does not appear in any way objectionable, for ten whole years, without the least particle of nutriment of any kind or form passing her lips, and without showing any sensibility or knowledge of external events; and has had, in that time, no excrementitious discharges from the intestines or urinary bladder. In 1812 this woman was still living; and, from the extraordinary tenacity to life which she evidently possesses, under circumstances that would have abridged the days of any other human creature, though now 80 years old, she may, perhaps, long enough survive to have her history more explicitly detailed, and the facts connected with her peculiar state decidedly unfolded." This expectation was, however, defeated by the death of Mary Thomas during the year in which this account was written.

On enquiring into the history of this case, a fact has arisen of some importance. Mr. Pennant, whose reputation for every thing excellent is still fresh in our minds, saw Mary Thomas in the year 1770; and his relation agrees so much with Mr. Ward's, that they mutually support each other, and give a degree of credibility to an otherwise incredible case.

The great attention which was bestowed by the philosophical world on the above cases, together with the spirit of inquiry which still exists as to the possibility of subsisting without food, has induced us to make the following extracts from a paper in the Harleian Miscellany as being perhaps not without some degree of interest. The title of the paper is, "A Discourse upon prodigious

Abstinence; occasioned by the Twelvemonth's Fasting of Martha Taylor, the famed Derbyshire Damsel: proving that, without any Miracle, the Texture of Human Bodies may be so altered, that Life may be long continued without the supplies of Meat and Drink." By John Reynolds. Humbly offered to the Royal Society. London: Printed for Nevil Summons, at the sign of the Three Crowns, near Holbourn Conduit; and for Dorman Newman, at the Surgeons Arms in Little Britain. 1669." Quarto, containing 37 pages, besides the Title and Dedication. *Harl. Miscell.* vol. iv. p. 43.

The exordium, consisting of a collection of similar instances, bears strong testimony of such occasional deviations from the course of nature; and we must confess, although at a loss to account for it, we are by no means to disregard such a mass of evidence, since many other facts less palpable to the community at large, and much less susceptible of proof, are believed, although equally inexplicable. Credulity and incredulity are alike the offspring of unreflecting habits. Too great a pliability on the one side, and too much inflexibility on the other, are obstacles that will always interrupt the way to truth. That pen, however, as our author says, "certainly drops blasphemy, that dares to raze the sacred records; and that uncharitableness which presumes to write falsehood upon all human testimonies: they that assent to nothing not confirmed by authority, are unfit to converse in human societies; for how can I expect that anybody should believe me, whilst I myself will believe nobody? It is an argument of an empty brain, to presume to comprehend all things, and thereupon to reject those things from an existence in their world that have not their science in its intellectuals.

"Most certain it is, that Moses fasted forty days and as many nights, whilst he abode in the burning mount; Elijah went as long in the strength of a meal; and no less was the fast of the holy Jesus. St. Austin reports, that, in his time, one survived forty days fasting. The learned Fernelius saith, he saw a pregnant woman that lived two months without meat or drink. Zacutus Lusitanus reports, that at Venice there lived a man that fasted forty days; another there forty-six days; and from Longius and Fontius (two considerable writers,) another full three years; and that with just stature, good habit, free countenance, and youthful wit. The famous Sennertus is copious in such stories: he relates from Sigismundus and Citefius, a person he saith worthy of credit, that the people of Leucomoria, inhabiting some mountains in Muscovy, do every year die, in a sort, (or rather sleep or freeze,) like frogs or swallows, on November 27, and so continue in that rigid state; the humour, distilling from their nostrils, is presently condensed by the ambient cold, much like to icicles, by which those potent pores are precluded, and the most endangered brain fortified against the fatal assaults of brumal extremities. The same Sennertus rehearses a story of a virgin at Padua, from Viguntia, professor there, who, anno 1598, was afflicted with a fever, then a tumor, then arthritic pains, and pains in the ventricle and whole abdomen; then with vomiting and nauseating of food, till at last she could take no food for two months; then, after another fit of vomiting, purging, and bleeding, she fasted eight months; and, after a little use of food, she fasted two months more. And, to be short, he stories it of three persons that fasted each two years, one three years, another four, one seven, another fifteen, another eighteen, and one twenty; yea, one twenty-nine, another thirty, another thirty-six, and one forty years. Famous is the story, perhaps fiction, being poetical, of Epimenides, (whose words St. Paul is thought to cite in his Epistle to Titus,) whom some report to have slept seventeen years, some seventy-seven years, together. But enough of story: those that are desirous to read more, are referred to Marcellus Donat. lib. iv. de Med. Hist. Mirab. c. 12. Schenk, lib. iv. Observ. Guaguinus, lib. iii. Hist. Franc. Petrarch, lib. iii. de Mirabel, c. 22. Portius de

de Hist. Pællæ German. Uspergensis in Chron. Lentulus in Hist. Admir. Apol. Berius, lib. de Vini Nutritione. Bozius, lib. xi. c. 4. de signis Eccl. Fulgorius, lib. i. c. 6. Lepæus, lib. ix. Hist. Scot. Fovorinus apud Gellium, lib. xvi. c. 3. and especially Licetus, who wrote a particular tract to solve the phenomena of this prodigy.

"But, further to satisfy these incredulous persons, it is affirmed that some of these abstinent have been watched by the most wakeful eyes and jealous ears, to detect their fraud, if guilty of any; as was that maid that refused all food, except only water, for three years, by Bucoldianus, with whom she abode for twelve days, at the command of Ferdinand the emperor; so that Apollonia Schrejerana was taken by the senate of Bern, and put into the hospital of that town, and there watched till they were satisfied of the truth of her total abstinence."

Most of these cases are certainly too unnatural to attempt to refute, however gravely they may have been asserted. Useless, therefore, as the task would be to disprove what nobody would believe, as well as to combat with arguments the existence of what has been said to be seen, believed, and sworn to, it would be equally unjust to doubt the authenticity of the whole. The case which the author himself has related, bears strong testimony of the possibility of the human body subsisting under privations of food for a number of days, if we do not give credit for the full time he has represented. This abstinent, he says, "is one Martha Taylor, a young damsel born of mean parentage, inhabiting not far from Bake-well in Derbyshire; who, receiving a blow on the back from a miller, became a prisoner to her bed for several days; which being expired, she obtained some enlargement for a time, but by increasing distempers was quickly remanded to her bed-prison again; where continuing some time, she found, at last, a defect in her gula, and quickly after a dejection of appetite; so that, about the 22d of December, anno 1667, she began to abstain from all solid food, and so hath continued, (except something so small, at the seldom ebbs of her distemper, as is altogether inconsiderable,) till within a fortnight before the date hereof, which amounts to thirteen months and upwards; as also from all other sorts, both of meats and drinks, except now and then a few drops of the syrup of stewed prunes, water, and sugar, or the juice of a roasted raisin, &c. but these repasts are used so seldom and in such very small quantities, as are prodigiously insufficient for sustentation: she evacuates nothing by urine or stool; she spits not, that I can hear of, but her lips are often dry, for which cause she takes water and sugar with a feather, or some other liquids; but the palms of her hands are often moist, her countenance fresh and lively, her voice clear and audible; in discourse she is free; her belly flapped to her back-bone, so that it may be felt through her intestines, whence a great cavity is admitted from the cartilago ensiformis to the navel; and, though her upper parts be less emaciated, (though much too,) yet her lower parts are very languid, and unapt for motion, and the skin thereof desiled with a dry pruriginous scurf, for which, of late, they have washed them with milk; she sleeps so sparingly, that once she continued five weeks waking. Left she should prove a cheat, she hath been diligently watched by physicians, surgeons, and other persons, (for at least a fortnight together,) by the appointment of the noble earl of Devonshire, as is already published by Mr. Robins, B. of D. that is, ballad maker of Derby; whose ballad, they say, doth much excel his book. Likewise several other persons, at other times, have been pleased to watch for their own satisfaction, who, detecting no fraud, have given the account above mentioned."

It was observed by Dr. Henderson, from Magn. Gabr. Block. that all examples of extraordinary fasting have been confined to the female sex. This is another confirmation of the remark. Men, however, under circumstances of necessity, have been enabled to endure severe privations,

even under considerable bodily exertions. The crew of Bligh, and the history of many other navigators, give full testimony of the powers that exist in mankind when their natural support has been materially reduced, and also totally taken away. The following particulars are collected from a note in Dr. Good's Nosology, to which we have been already so much indebted.

Four men were preserved in a mine, from which, in consequence of an accident, they were incapable of being extricated for twenty-four days, without other food than water. *Phil. Transf.* 1684.—A boy, fifteen years of age, said to have lived three years without eating or drinking, with fever occasionally; after this period he recovered tolerable health, excepting the use of one of his limbs, but even then took very little food. *Id.* 1720. by Patrick Blair.—A man, said to have lived eighteen years on water, with occasionally a little clarified whey; and locked up for twenty days in close confinement, with water alone, to prove whether there were any imposition: meagre, and supposed to have no evacuations; but in good health, and pursued husbandry. *Id.* 1742.—A woman, from epileptic fits when a girl of fifteen, took to her bed, lost her appetite, and was attacked with lock-jaw, which, with a few short intervals, continued for four years: was on two or three occasions induced to take a little water, and her mouth was at times moistened with wetted linen through a cavity in her teeth, from two of them having been broken in an attempt to force the mouth open; but swallowed nothing else. After this period, began gradually to recover from the tetanus, but had no desire for food; and twelve years from the attack, when able to walk upright, took no more food than sufficient for an infant of two years of age. Had no egesta, but when ingesta, which were proportioned to each other, but sometimes a dewy softness on her skin. *Dr. Mackenzie in Phil. Transf.* vol. lxxvii. 1777. This case is authenticated by numerous witnesses of high respectability, and is entitled to peculiar attention.—Case of a woman, who lost all desire of taking food by a fall from her horse into water during her first menstruation at the age of eighteen: for fifty years scarcely ever took solids, her chief food being whey in the summer, and milk, milk and water, or pure water, in the winter: had frequent retchings, which were cured by smocking tobacco: for the space of sixteen years had only one stool annually, in the month of March, resembling a globulet of sheep-dung: menstruation never recurred, but occasional vomitings of blood. *Edin. Med. Ess.* vol. vi.

3. *Limosis pica*, appetite for improper and indigestible substances. We have two varieties of this species.

α. *L. insulsa*, which arises from want of taste or discrimination, as in infants and idiots.

β. *L. perversa*. This arises from corrupted taste or indulgence. It is often founded on the absurd notion that eating chalk, acids, &c. will produce a fair skin. This variety answers to the *malacia, malaxosa*, of the Greek authors. When arising from these causes, chastisement or advice can only be had recourse to, and medical treatment is out of the question. It is to be doubted, however, whether mere mental impression ever induces this complaint. It is more reasonable to suppose that the morbid state of the stomach is the cause; and, in fact, we scarcely ever meet with a case of pica in which the gastric secretion is not much altered. Looking to more remote causes, uterine disorder appears often to influence the nervous system in the first instance, and the stomach secondarily. In the early stages of pregnancy, and in chlorotic subjects, the disease is most generally found; and hence some writers have supposed uterine irritation to be the sole cause of pica. But this is certainly not the case; for we sometimes meet with the complaint in boys; and in the West-India islands the negroes are often subject to it. It is rendered remarkable in the latter instance by dirt being the substance taken. It seems that regular habits of diet have frequently cured the negroes of this dirt-eating, without the aid of medicine. (See Bryan Edwards's

Edwards's History of the West India Islands.) It has been supposed that the prevalence of an acid in the stomach occasioned the demand for earthy and absorbent substances in pica: but many of the substances, taken in different instances, are not possessed of any antacid qualities. The disorder is very frequently beyond the power of medicine to relieve in a direct way. In the case of pregnancy, it commonly ceases altogether about the fourth month, and has been relieved by blood-letting in strong and plethoric women: but in chlorotic girls it is only removed by the course of medicine which removes the morbid state of the habit in general, and restores the natural discharge where that was suspended. In instances where it attacks men, or women in whom the uterine functions are healthy, it should be treated on the common principles of Dyspepsia.

It is astonishing to note the various disgusting and indigestible articles swallowed by the patients of this disease: chalk, ashes, coals, foot, pitch, cinders, &c. have each been taken in some cases. But among the most unnatural tastes evinced under this affection, though we do not agree with Dr. Good in calling it "one of the most common," is that for swallowing knives. In our own country it has occasionally occurred; (see KNIFE-EATER, vol. xi. p. 784.) but Plouquet, Init. Bibl. art. Pantophagus, has collected examples from almost all the different states of Germany and the neighbouring principalities, Basle, Prussia, Prague, and different parts of Russia. Another curious propensity is that of swallowing glass, of which also the instances are numerous. But these, as well as eating hair (Bresl. Sammlung, 1719.) and ordure (Borell. Obs. cent. iv.) must rather be considered as instances of folly and bravado, than of taste. Not so, however, the

γ. L. pica nasi, a name given by Cohausen to the immoderate and habitual taking of snuff, a filthy depravity common to both sexes; and which, after being confined for fifty years, in this country, to the old women of the old French school, has been revived by the dandies of the present day. It has not yet reached the ladies; and so we hope it may end where it has begun, with the most contemptible part of the creation. *Pica nasi* seems a whimsical term; but Cohausen has chosen to treat this habit as a disease, and has written an express treatise concerning it. The word *pica*, in general, denotes an absurd and unnatural appetite; and the desire of taking the powder of tobacco in this manner is called a disordered appetite of the part into which it is taken, that is, the nose. The consequences of the taking snuff immoderately, are, that the sense of smelling is either entirely destroyed, or at least greatly impaired: for the nervous tubercles of the nostrils, being continually vellicated by this powder, are by degrees clogged up, or wholly destroyed; and the sensible membrane, which lines the nostrils, is rendered callous, and wholly unfit for the discharge of its office in smelling. The voice is next affected by this powder; for it causes a force of constriction at the bottom of the nose, which affects the palate, and consequently the speech; this gives the person who takes it a continual desire of taking more and more, to rid himself of that stoppage.

As we are treating of morbid longing, it may not be improper to mention, that many persons recovering from febrile affections experience a particular desire for articles of food which we should, a priori, be inclined to think highly prejudicial, and consequently to deny them the enjoyment of. But experience has shown, that in this case the instinct may be often safely indulged: a rule to be admitted, however, with much caution and restriction.

4. Limosis cardialgia. This and the two following species we find it impossible to consider in any other light than as symptoms of indigestion. We shall therefore give but a brief account of them. Cardialgia has three varieties: α, mordens; β, syncopalis; γ, sputatoria.

α. L. mordens is that painful sensation of heat and

acrimony about the superior orifice of the stomach, which, from the vicinity of its seat to the heart, is popularly called *heart-burn*. It is produced by the irritation of acid matter in the stomach, which rises to the upper orifice, sometimes by eructation into the œsophagus and throat, and is sometimes completely ejected by vomiting. That this irritating matter is of an acid nature, is evinced by the taste; and it has even been seen to produce an effervescence on falling on a marble hearth, according to Dr. Darwin. When vomited, or raised by eructation, it is sometimes so intensely sour as to abrade the mouth and throat; and, in general, it produces a sensation in these parts similar to that which exists in the stomach.

The production of this acid may arise from two sources. If the gastric powers are so deficient that they cannot within a certain time digest the food, and propel it from the stomach, fermentation will take place, and acid will be generated. A better explanation seems to be, that the acid is secreted, that it is gastric juice changed from its natural state. That this is the case seems probable, because acid eructation is often felt so soon after a meal, that it is impossible acid could be generated by fermentation; and moreover we have known eructations possessing the highest degrees of acidity to pass from a patient whom we had confined for many days to an animal diet. The palliative remedies are alkalies. Dr. Darwin remarks, that, as the saliva swallowed along with our food prevents its fermentation, according to the experiments of Pringle and Macbride, considerable relief is sometimes found by chewing parched wheat or maltic, or a lock of wool, frequently in a day, when the pain occurs, and by swallowing the saliva thus effused.

β. L. syncopalis. This appears to differ from the last only in this, that the production of the acid is attended with so peculiar an effect on the nerves of the stomach, that feelings of extreme weakness and syncope are experienced. The pain, too, which in the first variety is felt in the upper extremity of the stomach chiefly, is extended in this to the lower part of the same organ.

γ. L. sputatoria, or water-brash; the pyrosis of Cullen. It is a burning pain extending over the epigastrium, with an eructation of watery fluid, usually insipid, sometimes acid. This disease comes on in paroxysms, which usually happen in the morning and forenoon when the stomach is empty. The first symptom is a pain at the pit of the stomach, with a sense of constriction, as if the stomach were drawn towards the back: the pain is increased by raising the body into an erect posture, and therefore the patient bends himself forward. This pain is often extremely severe, with a sense of burning; and the fluid continues to be brought up for some time, and does not immediately give relief to the pain which preceded it; but at length it terminates the pain, and the fit ceases. These paroxysms come on without any evident cause, nor is the origin of the disease always to be imputed to any particular sort of diet. It seldom, if ever, attacks those people who use fresh animal food daily; but appears to be most common among those who live almost entirely upon tea, milk, potatoes, and farinaceous substances. It is much more common in women than in men; sometimes it attacks pregnant women, and often those who labour under leucorrhœa. It seldom occurs in any one before the age of puberty, or in those who are considerably advanced in life: when it has once taken place, it is very prone to recur occasionally for a long time afterwards. It is more common in Scotland than in this country, and chiefly affects the lower classes of the people. The paroxysm is most effectually relieved by anodynes, especially opium, hyosciamus, and conium; and with less certainty by other stimulants and antispasmodics, as sulphuric ether, ammonia, and the tincture of guaiacum. These remedies, however, do not materially contribute to prevent the recurrence of the disease.

5. Limosis flatus, or flatulence, is the generation of air in the intestinal canal, which, like the production of

K k acid,

acid, can have only two sources; viz. either from the chemical changes which the food undergoes in consequence of deficient secretion, or from the altered state of the secretions themselves; for there is little doubt that air may be secreted, as Mr. Hunter first suggested. There are three varieties of this complaint: α , borborygmus; β , eructatio; γ , crepitus.

α . The first variety of flatus is indicated by a sense of uneasiness, with a rumbling or gurgling noise in the belly. It is sometimes very distressing, since it draws the attention of by-standers; and is not uncommon in young women, about the age of puberty. "I attended a young lady about sixteen," says Dr. Darwin, "who was in other respects feeble, whose bowels almost incessantly made a gurgling noise so loud as to be heard at a considerable distance, and to attract the notice of all who were near her. As this noise never ceased a minute together for many hours in a day, it could not be produced by the uniform descent of water, and ascent of air through it; but there must have been alternately a retrograde movement of a part of the bowel, which must again have pushed up the water above the air; or which might raise a part of the bowel, in which the fluid was lodged, alternately above and below another portion of it, as might happen in some of the curvatures of the smaller intestines, the air in which might be moved backward and forward like the air-bubble in a glass level." Dr. Darwin recommends "ten corns of black pepper swallowed whole after dinner, that its effects may be slower and more permanent," in the borborygmi of young women. We have seen them suspended by any substance, taken into the stomach, as a piece of dry biscuit, which, by the way, the late Dr. Buchan considered "as one of the best carminative medicines," and recommends it in all complaints of the stomach, arising from flatulence and indigestion. These disorders are often particularly troublesome when the stomach is nearly empty; and perhaps the operation of a biscuit taken at such times is merely that of relieving this temporary vacuity, which any other light aliment would equally effect.

β . The second variety, eructatio, is of course produced by the action of the muscular fibres of the stomach on the contained food. When this symptom does not take place, and wind is pent up in the stomach, it produces all the distressing consequences which are attendant on great distention of that organ. In some instances great pain of the stomach is excited, either by the simple extension of the fibres, or by partial spasmodic contractions; great anxiety and oppression are felt in the chest; the respiration becomes laborious and difficult; with a sense of suffocation; and the heart intermits in its action, giving rise to intermission of the pulse, or is excited to violent palpitations. These symptoms are generally alleviated by the discharge of wind by eructation: this alleviation, however, is only temporary; for the flatus again accumulates, and re-produces the same effects. The generation of air in the stomach, in less degrees, is an ordinary concomitant of indigestion; but it generally passes off readily. Some people, indeed, acquire a habit of voluntary eructation, which, Dr. Darwin says, augments the malady. He observes, "that, when people voluntarily eject the fixed air from their stomachs, the fermentation of the aliment goes on the faster; for stopping the vessels which contain new wines retards their fermentation, and opening them again accelerates it; hence, where the digestion is impaired, and the stomach somewhat distended with air, it is better to refrain than to encourage eructations, except the quantity makes it necessary." (*Zoonomia*, Class i. 3. 1.) It has been suggested, but, we think, incorrectly, that, in the repeated voluntary attempts to dispel wind from the stomach, which are often continued for some length of time, the atmospheric air is often actually *swallowed*, and the disagreeable sensation of distention thus augmented.

For the relief of flatulence, (the radical cure, as we have already observed, can only be effected by curing the

dyspepsia,) a number of medicines have been devised, from a very early period of time, especially such as are comprehended under the appellation of *carminatives*. These are generally substances possessing strong sensible qualities, which render them instantaneously stimulant to the nervous system; and, by suddenly exciting the muscular coat of the stomach to action, enable it to overcome the distension, and dispel the distending gas. The aromatic vegetables, containing much essential oil, such as juniper-berries, the seeds of anise, caraway, and coriander, the roots of ginger and zedoary, and the waters distilled from these, are among the most esteemed carminatives. To these may be added other stimulant and antispasmodic medicines; such as assafoetida, and other strong-smelling gums; volatile alkali; opium, ether, &c. Warm fomentation externally to the region of the stomach has been recommended by Dr. Darwin, and other external remedies were employed by Dr. Whytt; especially frictions on the region of the stomach, with liniments composed of the warm oils; such as the expressed oil of mace, oil of mint, &c. and also the application of large plasters to the belly, made with the stimulating gums and gum-resins.

γ . *L. crepitus*, is a term used to express the expulsion of wind *ab ano*. We confess ourselves totally at a loss to conceive why this expression was introduced into a system of nosology.

6. *Limosis emesis*, rejection of the contents of the stomach, or tendency to reject. This affection seems the simplest form of gastric disturbance. It is generally the immediate consequence of diminished nervous influence. Thus, blows on the head, injury of the nerves, or sympathy with diseased viscera, readily excite it. It has three varieties, which are only different degrees of the same action; and that action is, as we have said before, only a symptom of other diseases. The first variety,

α . *L. nausea*, or loathing, is the mere sensation of sickness without vomiting. The causes of nausea are numerous. We shall mention the most frequent one, viz. disordered digestion, under that head.

The brain is seldom materially affected by any serious irritation or derangement, without deranging the stomach by sympathy; thus, sickness at the stomach is a common symptom of every degree of local injury of the head, in which pressure or concussion of the brain is occasioned; it accompanies inflammation of the brain and its membranes, the pressure of water in the ventricles, or of other morbid effusion or growth within the cranium; as well as the opposite state or inanition of the vessels of the brain, as in syncope, or after great losses of blood. The other organs, with which the stomach is often sympathetically deranged, and sickened, are chiefly the kidneys and the uterus. Thus nausea is a common concomitant of inflammation in the kidneys, or of the irritation of gravel or of a stone lodged in these organs, and becomes one of the diagnostic marks by which disease in the kidneys is distinguished from other painful affections of the loins. Sympathetic nausea is also a frequent concomitant of uterine irritation or disorder; thus it is one of the most frequent symptoms of the beginning distention of the uterus in pregnancy, and accompanies inflammation and other painful conditions of that organ. The influence of the mind alone is likewise capable of exciting nausea, and even its ultimate degree, vomiting. The sight, or even the description or imagination, of loathsome and offensive objects and actions, will produce this effect on the stomach of many individuals of refined habits, or who are unaccustomed to such objects.

It is not easy to account for that variety of sickness, which is produced by certain kinds of motion of the body, such as swinging, whirling, and the undulating motion of a ship at sea. It seems, however, to be referrible principally to the sympathetic connexion between the stomach and brain; i. e. to the vertigo or dizziness produced in the latter, through the medium of the organs of vision, by these

unusual motions. Sickness and vertigo are mutually productive of each other, like some other affections of the head and stomach. When the stomach is rendered sick by wine or nauseous drugs, a giddiness is perceived, even with closed eyes, and *vice versa*. Dr. Darwin mentions a striking fact illustrative of the effect of this dizziness, produced through the organs of sight, in bringing on and preventing seasickness. "In an open boat passing from Leith to Kinghorn in Scotland, a sudden change of wind shook the undisturbed sail, and stopped our boat; from this unusual movement the passengers all vomited except myself. I observed, that the undulation of the ship, and the instability of all visible objects, inclined me strongly to be sick; and this continued or increased when I closed my eyes, but, as often as I bent my attention with energy on the management and mechanism of the ropes and sails, the sickness ceased; and recurred again as often as I relaxed this attention." (*Zoonomia*, sect. xx.) Similar nausea, though less in degree, is commonly an attendant on the vertigo produced by looking from a high tower, or attempting to cross a narrow path, unsupported, over a deep chasm.

As this is so evidently a mere symptom of disease, the treatment of it embraces a large field of discussion, varying according to its ætiology. As a palliative, effervescing draughts, or, when acid only is present, alkalies are serviceable. It is to be observed, that the practice of resorting to emetics on all occasions of nausea, is injudicious; and probably aggravates the evil tenfold, by augmenting the irritability and feebleness of the stomach, and thus laying the foundation for permanent imbecility in that important organ.

6. *L. vomituria*, retching, or an ineffectual effort to vomit. In this symptom the patient, by a voluntary act, endeavours to reject the load which oppresses him; but, the sympathetic action between the stomach and the involuntary muscles concerned in this act not being sufficiently in force, its performance is restrained.

7. *Vomitus*, vomiting, or rejection from the stomach. The act of vomiting is produced by the same causes as nausea, though they exist in greater degree. The same palliatives are in use.

Among other affections analogous to this, must be noticed *rumination*. It is known to be a natural and voluntary act in animals which have a plurality of stomachs, as the ox, sheep, deer, goat, and camel; (see vol. xiv. p. 236.) but unnatural and very rare in the human subject. Yet it is by no means a disease, but rather a peculiar constitution of the œsophagus; and those who have this faculty "have declared," says Blumenbach, "that they had a real enjoyment in it; and that with them, as with the class pecora, it was a voluntary act."

In exhibiting the history of our knowledge upon this subject, it is a matter of difficulty to determine whether it was known to the ancients, and, if known, in what light they viewed the affection; for it is evident, that we cannot, with justice, call it a disease, seeing that its possessors do not consider it such, from its being, on the contrary, rather attended with considerable enjoyment. If we consider the habits and boundless luxury of the civilized among the ancients, the manner in which the stomach was unloaded of a previous meal, in order to re-enter upon a second gratification of the palate, among the Grecian and Roman gourmands, in their respective eras of luxury, it may be easily inferred that such an affection as that we are now employed to describe, would have been considered a most delightful source of animal gratification; and certainly would not have been the less indulged, nor would the enjoyment have been diminished, had a similar opinion been entertained by their physicians as was propagated by honest Fabricius ab Aquapendente, that the possessor was endowed with a double stomach, and that the other bestial concomitants might, in process of time, be expected, either in themselves or their more bestial descendants.

Galen, who had ample opportunities of observation among the many instances of indigestion he must have met with in the luxurious court of the Antonines, does not give the history of a single case; and, amid the various stomach-aches and affections of Marcus Aurelius, which, it would appear, both puzzled the brain and excited the anxiety of this prince of physicians, so as to make him afraid that a glass of spiced wine might be too hazardous a remedy for the good emperor, the faculty of regurgitating his meals for a second mastication, appears not to have entered into the number.

Fabricius ab Aquapendente furnishes two of the earliest instances of human rumination. The first is of a nobleman, in whom it generally took place an hour after his meals; which, whether solid or fluid, were always returned, in order to undergo a second mastication. Fabricius thought it proper to mention that the father of this individual had a horn growing from his forehead; and, with great good faith, adds, "ex quo forte datur nobis intelligi, parentis semen aliquam habuisse cum cornuigeris animalibus, neque mirum fuisse genitum filium simile, quid a parente contraxisse:" that, although the son did not inherit his father's horns, yet he possessed the accompanying faculty of rumination.

The second instance with which Fabricius has favoured us, was in a monk, who, although possessed of a most ravenous appetite, died of marasmus. This monk was possessed of still higher bestial attributes; for Fabricius describes him as having his forehead loaded with two horns; and Johannes Burgowerus, who visited this monk in the company of Joh. Prevotius and Thos. Minadous, wrote a Dissertation on this interesting individual, and afforded Fabricius with the particulars which are inserted in his works. Burgower also adds, that the brother of this monk was also adorned with two budding horns, "Duorum cornum vestigia gestasse," as a striking feature of family-likeness; or, as this author will have it, "Quod enim fratris erat, id monacho ruminanti simul gratis impetunt." But this illustrious individual did not ruminate, unhappily for the argument of Thos. Bartholinus, who, from these two individual instances, hastens to the conclusion, (in his *Treatise de Unicornu*, cap. 2.) from the obvious analogy of the *cornuigeræ pecudes*, that all human ruminants are possessed of horns; and also avers, that a double stomach will always be found on dissection.

Sennertus furnishes another history of a man of forty, who possessed this faculty from a child. He finds no difficulty in accounting for its occurrence, when he learnt that, when a child, this individual had lost his mother, and had been fed during his non-age with the milk warm from the cow. He accordingly soberly concludes, that he sucked it in with his nurse's milk!

Philip Salmuth furnishes us with another instance of human rumination. It always took place in this individual about a quarter of an hour after having left table. He always ate ravenously, and swallowed his food almost without any previous mastication.

John Faber Lynceus (in *Expositione Histor. Nardi Anthonii Recchi*, p. 630.) gives an instance of most obstinate rumination in a highly-respectable German, who, even when seated over his cups with his friends, was always obliged to retire about half an hour after the meal into a remote corner of the apartment, and then ruminate the ingesta, undisturbedly and as quickly as possible; which having done, he enjoyed uninterruptedly the society of his friends. Having been asked how he became obliged to indulge this propensity, he answered that from a boy he had been subject to acid eructations; that, after having reached his thirtieth year, he found it impossible to resist admitting into his mouth the food that constantly regurgitated from his stomach. And, being farther interrogated whether the second mastication of his food could possibly afford him any gratification, "Indeed," he replied, "it is sweeter than honey, and accompanied by a more delightful relish."

This affection might be said to be in the family of this honest German; for he was blessed with two grown sons: the older, of twenty-four years, also possessed this delightful faculty, but had it more under control than the father, as he could prevent it altogether when in company. The younger could not.

G. H. Velchius adduces another example, in an inhabitant of London; who, in the fortieth year of his age, and of sound health, always returned his food, in order to undergo a slower and more deliberate mastication. Rumination mostly took place in this individual from an hour to two hours after a meal; but even at the remoter period it still preserved a pleasant taste, and was without any degree of acidity.

In an instance adduced by Daniel Ludovicus (in the *Ephemerides Nat. Cur. anno ix. and x.*) that occurred in a young woman, this act was not performed with the usual pleasure, and the returned food possessed a more disagreeable taste than that which accompanies the more perfect cases of this affection. Bitters and stomachic purgatives did not prevent its occurrence, which however was not always regular in its appearance; and, although cathartics and emetics prevented it for a short period, it soon returned.

John Conrad Pyer (*Merycologia, cap. vi.*) mentions a case in a fatuitous young man; also its occurrence in a rustic in Switzerland; and in a woman in the neighbouring town. He sagely endeavours to prove, from the circumstance of those individuals being rustics and cowherds, that the frequent sight of the ruminating process had impressed their brains with a similar propensity, which, although imperceptible in its progress, had nevertheless ripened into maturity.

Slare (in an early volume of the *Phil. Transf.*) mentions the case of a Bristol man, who appears to have possessed this faculty in its perfection. This individual not only ruminated the solid ingesta, but also fluids, as milk and soups. There was, however, one imperfection connected with this case, as it relates to the state of this man's stomach during his meals; that the viands seemed scarcely to descend into the stomach, but to lie in the lower part of the throat. However, the portion of the meals first taken was first ruminated.

In a case related in the 286th Number of the *Journal général de Médecine* by Mr. Tarbes, as quoted by the Editor of the *London Medical and Physical Journal*, the prominent phenomena were nearly the same as the one just related. Rumination was first manifested by the patient after his recovery from confluent small-pox, in the sixth year of his age; and it was constantly performed after every meal, until the period of its total cessation.

About half an hour after having eaten, he suffered a slight uneasiness in the epigastric region; this sensation was followed by the transmission of a ball of food from the stomach to the mouth. The aliments thus brought up had neither a disagreeable odour nor an acid taste, and did not appear to have undergone any alteration in the stomach. The patient chewed them with as much pleasure as he did on first taking them. After this portion was again swallowed, another mass, which did not appear to have been mingled with that chewed the second time, was brought into the mouth; and so, in succession, all the food he had taken at his last meal was returned. On sitting down to eat his food, the patient, instead of masticating well what he took, only divided it in a very imperfect manner, as might be seen by the specimens returned into the mouth during rumination. If he, by chance, happened to sleep soon after a meal, he, after about two hours, awoke to vomit up all the food which had not been ruminated. He went on in this way until the time of his marriage, when his rumination ceased, almost suddenly. It was lessened on the day ensuing from it, and was entirely discontinued at the end of eight days. A great thirst, which he had suffered whilst he ruminated, disappeared at the same time. He suffered no

inconveniences in consequence of the change; and, during the six years which have since elapsed, he has become more robust and healthy than before.

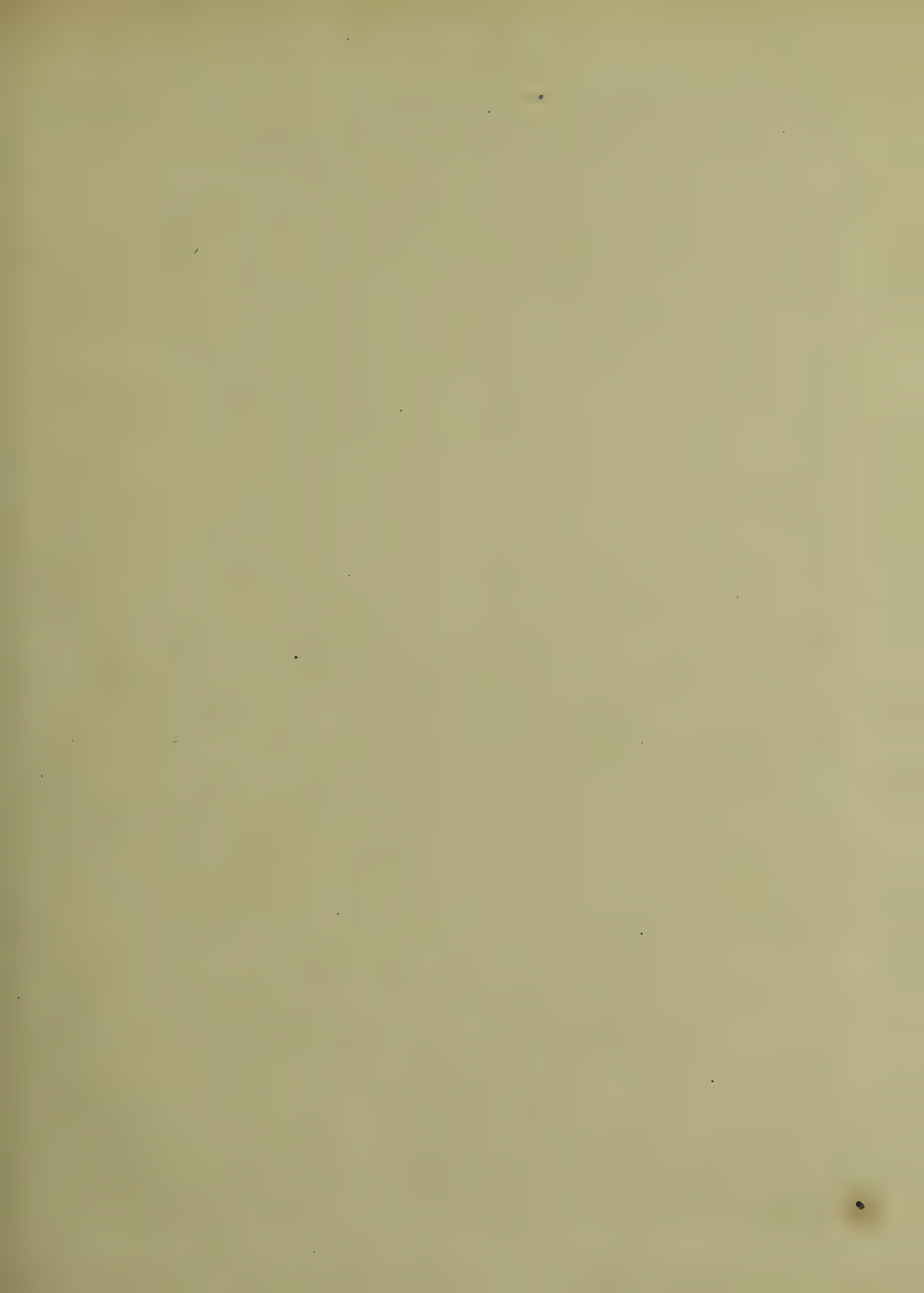
Dr. Copeland has related a curious case of this kind in the *London Med. and Phys. Journal*, No. 267, for May last (1821.) The subject of it was a gentleman in the meridian of his age, of a strong but spare habit, and of the sanguineo-melancholic temperament. Owing to causes to which he was subjected through the very early period of life, he had been obliged to take his meals in a very hasty manner. The very few minutes allowed to his ordinary meals led to a hasty and imperfect mastication of the food; and, although his time was at his own disposal as he reached manhood, still the habit had been retained through the rest of the already passed portion of his life.

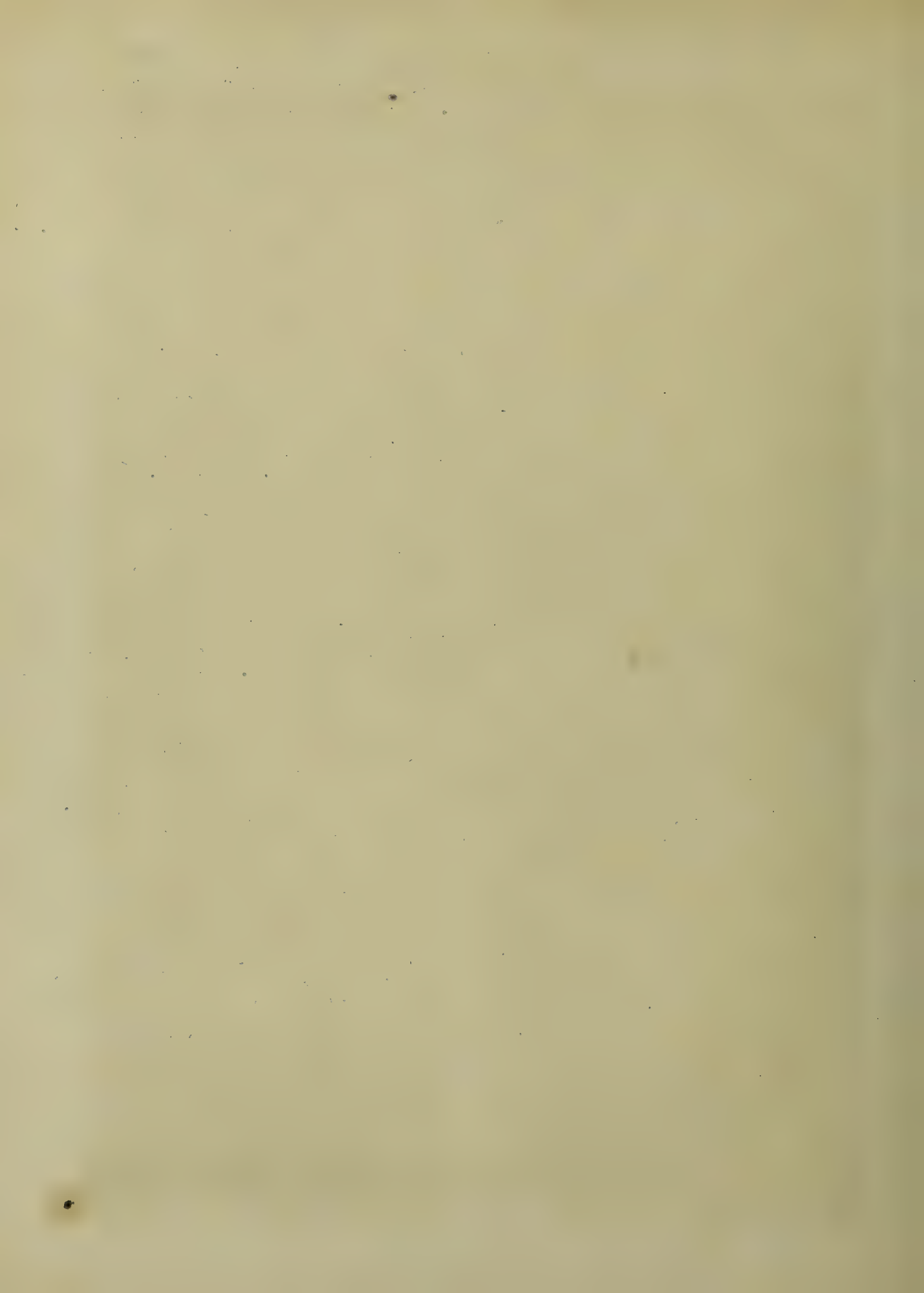
The greater part of its early period was spent in an active, varied, and pleasant, employment, generally in the open air, and in the vicinity of the sea; and this alternation of active exercise, in so healthy a situation, preserved the due equilibrium of the organic actions; the former neutralizing the effects produced upon the digestive functions by the co-operation of an hasty and imperfect mastication of the ingesta, and by sedulous study.

So long as this diversified mode of living was enjoyed, the regular operation of the digestive tube was continued, and no symptoms of dyspepsia appeared, until he took up his constant residence in the metropolis. For a considerable time, the chief and almost only complaint was *spontanea*, or water-qualm: for two or three hours after every considerable meal, part of the more liquid contents was ejected from the stomach, in large mouthfuls, at intervals of from two to five or ten minutes, attended with a slight acidity; sometimes with a slight flatulence and sense of fullness at the stomach, but never with any cardialgia, nor with the slightest sensation of nausea. This affection was generally augmented by any of the usual articles of desert, or by port-wine; while it was relieved, or entirely prevented, by a moderate quantity of white wine, and by avoiding every species of exertion that could tend to disturb the function of digestion. This affection, after continuing several years, with occasional interruptions, according to the care and means taken to prevent it, passed at last into complete rumination, which has been present after every considerable meal for some time. But, as it was attended with less inconvenience than the preceding *spontanea*, and being unaccompanied with any disagreeable sensation, no great importance was attached to it, until it became complicated with a cutaneous eruption. For that I was consulted; and, upon making inquiry into the state of the digestive organs, was readily informed of the ruminating affection. The professional intercourse that now took place furnished me with the particulars already related, which may serve as an introduction to a knowledge of the nature of this disease.

The following is a statement of the particulars of this case, when submitted to my care. The ruminating affection was at that time generally present after all his meals, and constantly after breakfast and dinner. The appetite was always good, and the food, constantly taken in large mouthfuls, was masticated hastily and imperfectly, and swallowed eagerly. There was no thirst; the bowels were habitually costive. Sleep was sound. His meals were taken more with a desire to satisfy an unpleasant sensation or a requisite desire, than to indulge the pleasures of the palate, and was performed hastily, in order that the studies and pursuits, to which he considered eating an interruption, might be immediately resumed.

Under the usual circumstances, rumination commenced from a quarter of an hour to an hour and a half after a meal. Immediately upon the commencement of this act, a slight sensation of fullness might be felt at the cardia, when the attention was particularly directed to it, that led to a deeper inspiration than usual. So soon as the act





act of inspiration was completed, and while the muscles of the glottis remained fixed, a bolus of the unchanged aliment rose rapidly from the stomach, with the first effort at respiration, at the moment when the diaphragm had just relaxed, and the re-action of the abdominal muscles commenced. But expiration did not take place until the alimentary ball had passed completely into the mouth, as the glottis remained closed until then: upon this having taken place, expiration was immediately effected; and so rapidly did expiration succeed to the regurgitation of the alimentary bolus, that the latter (unless when the attention was closely applied to the subject) appeared as part of the expiratory act.

The ruminating process was never accompanied, at any time, with the smallest degree of nausea, nor any pain or disagreeable sensation. The returned alimentary bolus was attended with no unpleasant flavour, was in no degree acidulous, and was equally agreeable, and was masticated with additional pleasure, and with much greater deliberation than when first taken. The whole of the aliments received at any one meal was not returned in order to undergo this process, only the part that had undergone an insufficient mastication; but which indeed constituted the greater portion of solid aliment. That taken at the commencement of a meal was the first disgorged: this was ascertained by eating from a variety of solid dishes, or from partaking of different portions of the same. The more fluid portions were not always returned, unless along with the more solid or imperfectly masticated parts. When, however, the stomach was distended by a large meal, the fluid contents were frequently returned, and subjected to this process.

This affection may be considered as having been passively under the control of the will; and, although it sometimes took place when nearly unconscious of the process, yet it never occurred when the mind was incapable of being acted on by external impressions received by the senses. Thus, if at any time, from previous fatigue, and the concentration of the organic nervous energy towards the digestive organs, sleep was induced immediately after a full meal, this affection did not take place; but flatulence, acrid eructations, &c. afterwards supervened, and continued for some time, in consequence of the gastric juices being insufficient to the production of the requisite changes on the ingesta retained in a state of imperfect division. Very frequently, when the ruminating process was thus prevented, or voluntarily suppressed when circumstances required it, the ingesta, both fluid and solid, were returned at the end of several hours; but were then generally acid, frequently acrid and bitter, and sometimes in so large a quantity as to fill the mouth beyond its capacity of retention. But even then no cardialgia nor gastrodynia was experienced, nor the smallest degree of nausea; and even these disgorged matters were attempted to be masticated, although generally thrown out on account of the disagreeable taste.

"In speculating upon the nature of this case," says Dr. C. "it appears evident that the energy of the digestive and assimilating organs was greatly diminished: consequently the stomach, deriving its influence, whether that presiding over the muscular action or vascular secretion, from the same source, namely, the organic system of nerves, experienced a proportionate diminution in its secreted juices. This was rendered apparent by the changes which took place in the aliments, when taken even in very moderate quantity, and when retained without being submitted to re-mastication. Connected with debility of this organ, an increase of its animal sensibility, which it derives from the distribution of the eighth pair of nerves, appears to have been present. Under these circumstances, the gastric juices (being, as inferred, in diminished quantity) could be sufficient only for a small portion of aliment, which nevertheless had been taken in an abundant quantity; and, having combined with that part whose state is most favourable to such an ad-

mixture, and being, by the usual action of this organ, conveyed to the pylorus, the imperfectly-masticated portions, and that part which remains unpenetrated by the gastric juices, must either continue at the cardiac extremity, or be propelled there by the action of the stomach. That the undigested portions of the food do not only remain in that situation, but may, by a peculiar and complicated action of this organ, be conveyed there, may be proved not only by reasoning upon the nature of its organic action, but has even been demonstrated by large fistulæ of this organ, situated at its anterior convexity, and opening externally at the epigastric region. In a case in the Hôpital de la Charité, under the care of Corvisart, the complicated action of this organ was witnessed, conveying the digested portions of the ingesta towards the pylorus, which passed only in very small quantity, while the bulk of the unchanged aliment was propelled, by a contrary action, to the opposite extremity of the organ. It cannot be supposed improbable that the irritation produced in this part of the stomach by the unchanged aliments in ruminating individuals, should excite the animal sensibility of this organ; and, if the brain be in a state capable of receiving the sensation, it is propagated to the organs of respiration, and their action induced through the medium of the same set of nerves, namely, the par vagum, that forms not only the respiratory class, but also the connecting chain between the organic and animal orders of the grand nervous system; and, while it bestows an exquisite sensibility on the pulmonary system, it likewise gives a requisite, but sparing, share of its influence to this important organ.

"In effecting the process of rumination, the organic contractility of the stomach can do no more than, by an elective process (soon to be explained), place the aliments about to be returned in a situation, in respect to the cardia, favourable to the excitation of the animal sensibility of this organ, and to its ready regurgitation and propulsion along the œsophagus. So soon as the demand is made upon the sensibility by the situation of the alimentary bolus, the par vagal class of nerves is excited to action, and a full inspiration is effected, as has been described. The introduction of the bolus into the cardiac extremity of the œsophagus, may be considered as effected by the ordinary contractility of the stomach; perhaps sympathetically heightened at the moment by the re-action of the abdominal muscles; while, at the same time, the diaphragm has just undergone relaxation, in which the cardia may, from intimate nervous communication, suffer a similar participation, and thus give facility to the ascent of the alimentary ball in the œsophagus, which immediately contracts behind it from the irritation produced by its passage, and the bolus is thus conveyed to the mouth.

"The influence of the will appears to be requisite, since the process is interrupted during sleep. But this influence is only *passively* engaged in the production of the ruminating act, by bringing about the co-operation of the respiratory organs. The elective process exercised by the stomach in this affection, is similar to that which it employs in periods of health, and may be considered as relative to the degree of digestive energy, and to the comparative states in which the various ingesta may enter the stomach.

"In the debilitated state of the stomach, and consequent deficiency of the secretions, digestion can be perfectly performed only when the aliments are presented in small quantity, and in a favourable state, from complete comminution and from intermixture with the salivary juices. If, however, in this state of the organ, the food is conveyed rapidly into it, possessed of neither of these requisites, so as to produce sudden distention, a re-action of this viscus upon its contents takes place; and, as the imperfectly-masticated food constitutes the greater portion of the ingesta, there is abundance present to be returned into the cardia, while there is a deficiency of aliment in

a fit state to combine with, or to be operated upon, by the gastric juices; which, when effected, is rapidly conveyed to the other extremity of this organ, by the re-action of the muscular coat, from the undue distention and the stimulus of solid contents. Thus a double effect is produced by the healthy organic contractility of this organ, when in a weakened state, and yielding a diminished quantity of the usual fluids; which state indeed may be considered as constituting this peculiar affection, namely, that part of the aliment which is dissolved by the gastric juices is conveyed towards the pylorus, while, at the same time, the tonic action tending to diminish the capacity of the organ pushes the less comminuted and indigestible portions of food into the unresisting cardia; which is returned, as I have attempted to describe, in order to undergo a second comminution and intermixture with the salivary juices; after which it is in a fit state to be conveyed to its destination along the mucous surfaces, with the juices of which it combines, and thus permits a central portion of the mass to return and undergo a similar process.

"In the curative plan pursued during the time this gentleman was under my care, the cutaneous eruption was viewed as originating in the long and progressive derangements of the digestive canal; and the ruminating affection, from the highly intelligent history of its origin afforded me by the patient, as well as of the sensations and connexions of the phenomena so kindly accorded me during my attendance, was considered as the most advanced and peculiarly modified state of dyspepsia, or gastric debility.

"Under the use of infusions made from a combination of vegetable tonics, aperients, and aromatics, with the addition of an alkaline carbonate or a carminative tincture, and the frequent use of the warm bath, with subsequent friction; while, at the same time, a deliberate mastication of the aliments, and a moderate indulgence in light and digestible food, was enjoined; amendment soon became apparent. After a fortnight's continuance of this plan of treatment, the cutaneous disease had made considerable progress towards removal, and the ruminating affection, which till then had been present after every considerable meal, was now very seldom experienced; nor did any symptoms of dyspepsia take its place, unless when the injunctions regarding the mode of living and mastication of the food were not attended to, or when subjected to causes operating a diminution of the digestive energy; then, dyspeptic symptoms, or even slight rumination, occasionally presented themselves.

"Within a few weeks, the eruption was entirely removed; but the ruminating affection returned whenever the proper precautions were not observed. Having impressed the mind of my patient with the necessity of pursuing correctly the plan I had prescribed to him, upon the grounds that such an affection, if indulged, would gradually undermine the energy of his system, he became more attentive to the state of his digestive organs, and to his mode of living; and now, (March 1821.) for several months, he has enjoyed perfect health, and had no return of the ruminating act. Having transferred, as he says, the gratification formerly enjoyed in the second mastication to the first, this process is now performed more deliberately; a more complete admixture of the aliments with the salivary fluids and with the air, takes place; while the stomach is less suddenly, and much more moderately, distended."

Dissections have not been able to throw any light upon this affection; nor can it be expected, in the present state of our medical knowledge, that, even in the event of a violent death taking place in a ruminating subject, any visible alteration in structure could be detected. Fabricius ab Aquapendente and Thos. Bartholinus were confident of finding two stomachs, at least, in ruminating individuals, from the analogy of the cornuted tribes. Pyer and Morgagni ridiculed the idea, and supported a

contrary opinion, upon the ground that there were animals that ruminated without a double stomach. The only instance Dr. Copland had met with in which inspection after death took place, was in the instance of this affection occurring in a monk. This dissection is recorded both by Jo. Rhodius (Cent. ii. obs. 59.) and also by Bonetus, (Sepulchretum, l. iii.) It was made by Fanciscus Plazzonus, and is thus related by Jo. Rhodius: "*Monachus cum voluptate cibus ruminavit. Medici brutorum more gemino ventriculo præditum putabant. Ipso defuncto, F. Plazzonus œsophagum reperit undique carnosum instar musculi, reliquis universi corporis partibus se recte habentibus.*" The physicians of the seventeenth century were not much enlightened by the opening of this monk, but their dreams respecting the existence of two stomachs were henceforth dissipated.

Enthusiasts in their arduous profession (which all young medical men ought to be) are greatly indebted to such learned physicians as Dr. Copland, Dr. Cooke, &c. for their indefatigable researches into the early histories and records of the more ambiguous diseases; and the utility of such condensed communications is greatly enhanced by the practical remarks accompanying them. Mr. G. Nesle Hill has added a case, and dissection, of similar disease in a severely-afflicted insane patient, who fell under his care in the year 1791: he appeared to fall a victim to epileptic insanity, the result of early indigestion. That part of the history of this young man which related to his rumination of his food, bore an exact resemblance to the one so ably detailed by Dr. Copland. "I examined the body, (says Mr. Hill,) in the presence of the venerable Haygarth, who, as well as myself, was much struck with the extreme tenuity and smooth internal surface of the stomach. In order the more correctly to observe the ruminating process, I invited my patient to dinner several times; he ate with a ravenous appetite and wonderful quickness, but never finished a meal without commencing the ruminating process." A further history of this case will be found in the Appendix to Hill's Essay on the Prevention and Cure of Insanity.

7. *Limosis dyspepsia*, or indigestion. The function of digestion in the stomach being performed by means of secreting agents, which are vessels and nerves, and by muscular fibres which propel the food downwards, all causes of indigestion must operate, 1. by disturbing the transmission of nervous influence; 2. by disturbing the action of secreting vessels; or, 3. by paralyzing the play of the muscular fibres. Now it would require little labour to show, that nothing can influence the one materially without influencing the others, both on account of their reciprocal action, and on account of the agency which foreign substances will produce on the other structural elements in consequence of the deficient action of one. Thus, if nervous influence be disturbed, secretion will be wanting; consequently the food will undergo chemical decomposition, will swell and evolve gases; thus it will distend the circular fibres of the stomach beyond their usual sphere of relaxation, and by that means prevent the further digestion of food. In the same way the muscular coat will be liable to distention in the case of diminished secretion, when that diminution arises from torpor of the fecerent vessels; and, if the circular fibres are distended by mere quantity, that distention will hurt the nervous power; for it is known that when muscles are stretched beyond a certain natural compass, their nerves communicate to the sensorium pain or irritation. In this way, therefore, reasoning from our knowledge of the quick communication of nervous power to and from the brain, we infer, that increased transmission of nervous influence to the affected organ will arise. Here secretion will be increased, though in early instances probably unaltered. By this increased secretion, the food will be prevented from enlarging by chemical changes, and cannot therefore further distend the circular fibres; while those forces will, in consequence of the

the solution of the substance, more easily expel it: so that, in early accidents of this sort, the increase of one power seems to relieve in some measure the deficiency of the other. This, however, can obtain but for a short time; for the undue excitement of the secreting vessels must soon induce altered states of the gastric juices; states in which of course the latter will be deficient in some of the dissolving qualities. It is impossible to state exactly which of, or in what proportion, these powers first undergo derangement. It is probable that, while in gluttonous distention of muscular fibres is the first step to disorder, in the drunkard the nervous expansions may be first injured, while the secreting vessels are disordered by causes which arise from the constitution at large. Having shown, however, that these powers are all essentially deranged in a manner almost simultaneously, it is of little importance to attempt to trace the subject further: for it does not seem that, generally speaking, in the earliest stage of indigestion, the vascular system is materially implicated. We except of course the affection of the stomach which we have noticed in our introduction, chronic gastritis.

We have already endeavoured, on general principles, to trace the morbid affections arising from disorders of the alimentary canal: it remains to do so in detail. We have said that this disorder injures the other parts by nervous influence, or by the absorption and local application of diseased blood. There seems every reason to believe, that in indigestion, when the complaint is not very violent or of long standing, though nervous irritation may arise, the assimilation of food into healthy blood is not materially altered: so that disease traceable to indigestion will in the first stages be the mere consequence of nervous disorder. It is important, as a practical distinction, thus to know when derangement is propagated to remote organs by nervous communication, without involving the vascular system importantly, or whether the vascular system has become deranged in consequence of the local application of diseased blood, or a continuance of nervous irritation so long kept up as to alter the contractile power of the vessels. The tracing of diseases in this manner appears to us a matter of the utmost importance; for it is notorious that many affections arise from disturbance in the stomach and bowels, which mimic or resemble idiopathic diseases of the first magnitude and danger.

Idiopathic disease may after a time be induced by the long continuance of the cause just mentioned; but it is a practical fact of the utmost consequence, that, while inflammation, (and that is the most frequent form of disease that occurs,) arising idiopathically, is difficult of subduction, and only to be removed by emptying the blood-vessels; the same action arising from nervous excitement thus propagated, soon subsides when that excitement is withdrawn; and this takes place, though more rarely, even in cases of long standing; in cases where the assimilative function is deranged, and morbid states of the fluids are existing, the removal of these states being attended with the gradual subduction of the propagated disease.

Having detailed the causes of indigestion in full in our introductory observations on this class, we shall now proceed to consider the symptoms of indigestion, dividing it into two stages. The first, in which mere disturbance of function, the digestive, and that in slight degree, is apparent, and in which the sympathetic diseases are varying and unmarked; the second, in which that disturbance is manifested in a marked and serious form, in which the vascular structure seems continually affected, and which is generally connected with diseased states of the collative viscera. The dependant ailments attached to each of these states will be discussed under the same heads. This division is however merely chosen on account of its practical utility, because some difference of treatment both of the local and constitutional disease is necessary, according as the digestive disturbance is recent or of long

standing; but, in enumerating the symptoms of this disorder, it must be confessed that no peculiar sign indicates with certainty or precision the passing of *disorder*, or the first stage, into that of *disease*, or the second; and that much careful and in some measure original observation is required even after the fullest description on the part of the practitioner.

The symptoms of the early stage of indigestion are such as arise from chemical changes in the food, and the simplest changes in the gastric fluid: these are the evolution and eructation of various gaseous, oily, acid, or acrid, productions. They exist in various degrees; but are only present, however, during or after a meal; and, when the digestion is not in action, little inconvenience is experienced. It appears, however, that the trifling disturbance in the function of the stomach may, for a certain time, produce a feeble or otherwise vitiated secretion, without in any other way very sensibly affecting the functions of the system. People frequently complain of a sense of distention after eating, and flatulent and acid eructations, who, notwithstanding, enjoy good general health; and find that even these symptoms may be prevented by taking less food, and that of a more digestible quality; and, if they are prudent in this respect, and the constitution is otherwise sound, and not exposed to the effects of indolence, and other causes weakening the nervous system, the stomach will often recover its powers without farther means. The irritating causes are often, however, daily and hourly applied, and leave the stomach permanently disordered by their frequency. The gastric juice becomes probably so altered or increased, or secreted at improper times, as to produce unpleasant fulness in the stomach, even during its empty state. The bowels, whether in consequence of the unnatural or undigested state of the materia applied to them, whether sympathetically affected by continuity of structure, or from want of a natural stimulant existing in the secretion of the stomach, become deficient or irregular in performing their office. Their secretions likewise suffer deviations from the healthy state, and are scantily produced. The quantity, colour, or consistence, of the feces, are changed; they are occasionally distended and tense, especially some time after eating. Disordered secretions are manifested in the mouth: a clammy taste is experienced; and the tongue is more or less furred, especially in the morning. But these symptoms, the patient finds, yield to some mild aperient, which, at the same time, promotes the action of the stomach; and his feelings on the whole differ but little from those of health. He is more apt to be thirsty; his appetite is generally more or less impaired and variable; he complains of his feet being cold; but still his strength and general appearance are but little affected; and he seldom thinks it necessary to pay particular attention to symptoms which appear so slight, and for the time yield so readily. By degrees, however, they recur more frequently, and begin to be attended with some depression of strength, which at first is only occasional. This, in general, is the first thing which seriously calls his attention to the disease. The mind, if the disease proceed, partakes of these returns of languor, and the patient at length finds it difficult at all times to command his attention, and, upon the whole, that he is not capable of his usual mental efforts. His sleep is disturbed by perplexing dreams, and sometimes by fits of night-mare. In a large proportion of cases, however, he enjoys good nights, and even those who are troubled with dreaming and restlessness, often feel more drowsily than usual. He now becomes alarmed, and occasionally feels a degree of dependency. Instead of thinking too lightly of his complaint, he often regards it in the most serious point of view, and cannot be persuaded that any thing less than some important derangement can produce the anxiety and depression by which his attention gradually becomes wholly engrossed.

The derangement of the alimentary canal now produces

duces disordered function of the collatitious viscera; and a change takes place which marks an important step in the progress of the malady. The alvine discharge begins to deviate from the healthy appearance: it sometimes contains uncombined bile, sometimes it chiefly consists of bile; its colour at other times is too light, more frequently too dark; and occasionally, at length, almost black. At different times it assumes various hues, sometimes inclining to green, sometimes to blue; and sometimes it is mixed with, and now-and-then almost wholly consists of, undigested bits of food. When there is much straining, it often contains mucus in distinct masses, and not unfrequently substances resembling bits of membrane. It frequently separates from the canal with more difficulty than usual, and leaves a feeling of the bowels not having been completely emptied. We have reason to believe that the above change and variety of colour arise chiefly from the state of the bile, to which the alvine discharge owes its natural tinge, being quite white when no bile flows into the bowels. It would appear that the properties of the bile are sometimes changed without change of colour; but this is comparatively so rare, that, if the colour of the alvine discharge be natural, we may generally infer that the function of the liver is duly performed.

Many conceive that the changes of colour in the alvine discharge are often to be ascribed more to circumstances in diet, and changes which the contents of the bowels undergo in their passage through this canal, than to the state of the bile; and we have no doubt these causes operate to a greater or less extent. The long delay of their contents in the bowels generally darkens the colour; a milk-diet produces a discharge of a lighter colour than one consisting chiefly of animal food, and some vegetables and medicines communicate a certain tinge to the discharge. With a little attention on the part of the practitioner, this circumstance will seldom mislead him. It must always be kept in view, that the appearance of the discharge often changes when it has remained for some time out of the body.

The disease has hitherto been what is called stomach-complaint. It is now, from the various appearances of the vitiated bile, and the various symptoms which arise from the irritation it occasions in the alimentary canal, what is called bilious and nervous complaint. The former of the two last appellations has also arisen from the bile, of which there is sometimes a superabundant secretion, being occasionally, in consequence of the inverted action of the duodenum, thrown into the stomach; and there exciting nausea, headache, and bilious vomiting.

The urine also deviates from the healthy state. In its most healthy state, it is perfectly transparent when passed, and remains so after it is cool, its colour being more or less deep in proportion to the degree in which its contents are diluted. But it is sometimes covered with a very thin oily film, which appears to arise from an imperfect state of the assimilating process. Sometimes also it is limpid, and passed in unusually large quantities, more frequently scanty and too highly coloured. It is then most apt, as we should *a priori* expect, to deposit sediment, unless some degree of fever prevail, when it often either deposits nothing, or a little of the red sediment.

A remarkable sympathy between the state of the kidneys and intestines is often observed in indigestion; the urine remaining scanty and high-coloured, when the bowels are constipated; and flowing freely, and of a paler colour, as soon as a free discharge from them has been obtained. Even in those dropical affections which supervene on this disease, it is common for all diuretics to fail, when the bowels are constipated, and for the operation of cathartics alone to be followed by a free discharge from the kidneys.

The copious flow of urine which sometimes attends indigestion, seems frequently to arise from a failure in the

action of the skin, as appears from some of the experiments just referred to. The kidneys and skin separate the same fluid from the blood, and a failure of secretion from the latter is often compensated by an increase of that from the former, if they have not by sympathy partaken too much of the state of the skin. Thus, in dyspeptics, an unusual application of cold to the surface, when the powers of the system are not able to re-act as to support the due action of the skin under it, frequently occasions an increased flow of urine. The same cause often occasions a greater discharge from the bowels. It particularly demands attention in this disease, that, although the increased discharge from the bowels in the instance before us is of a watery nature, when the skin has, from the state of that disease, become uniformly languid, the increase is often in the solid, as well as liquid, contents of the bowels. On the same principle, the quantity which passes from the bowels of delicate children when the skin has become dry and shrivelled, is often astonishing, and that even when little nourishment is received; as if not only what ought to have passed by the skin, but a great deal of what had been inhaled by this organ, were deposited in a solid form in the alimentary canal.

What is here said is well illustrated by the cases which we detailed of very great eaters, in whom the alvine discharge was no greater than in other people, but the secretion by the skin was found much more copious.

The sensible change in the appearance of the alvine secretions in indigestion, is generally attended with some change in the other symptoms. The stomach is more apt to be oppressed after eating, the patient often observing that he feels as if there were not room for what he had taken. The bowels are more frequently variable, diarrhoea often supervening without any evident cause, almost uniformly followed by fits of constipation. These, the patient finds, cannot now be removed by the simple medicines which at first restored due action to the bowels; larger doses or more active medicines are necessary, and their effect corresponds with the previous state of the bowels. The discharge is generally unsatisfactory, something seeming to be retained. It is very often watery or semi-fluid, mixed with mucus, and sometimes streaked with blood; and, after it has been repeated, often chiefly consists of mucus and a little blood, the passing of which is attended with much griping and bearing-down, and followed by a constant desire of further evacuation. The patient takes more medicine with the hopes of a freer effect; but he thus often increases the straining more than the discharge.

After this state of irritation has continued to recur for a great length of time, a degree of permanent spasmodic stricture sometimes appears, which gives a tape-like appearance to the alvine discharge. In the mean time the patient is harassed with a variety of other symptoms, arising from the irritation occasioned by the morbid contents of the alimentary canal; increasing languor, pains of the stomach, more frequently of the bowels, and particularly of the lower part of the bowels, sometimes continued, generally of the griping kind; a sense of heat, or, as the patient often calls it, burning, referred to the stomach, and now-and-then extending to the bowels, (which sometimes proves the most obstinate and distressing symptom of the disease); or of weight in the right hypochondrium or lower part of the abdomen, with unusual distension of the former, sometimes disappearing in a day or two, particularly after freer evacuations, and returning again, at other times more stationary; a more foul and clammy tongue, nausea, more rarely vomiting, a depression of strength, which sometimes, particularly after the unsatisfactory operation of cathartics, almost amounts to syncope, and a dependency that is hardly equalled in any other disease.

As these symptoms proceed, others, the consequence of the sympathy which exists between the stomach and other parts of the system, gradually show themselves. These
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are different in different cases; pain of different parts, and other complaints, of the head, affections of the sight, the hearing, smell, or taste. The voice and articulation are sometimes variously affected. The patient is distressed with spasms of the trunk or limbs, numbness, and even temporary loss of power in the latter; and feelings of endless variety are described, as sometimes in one part of the body, and sometimes in another.

By a constant recurrence of such attacks without being uniformly ill, for the rapidity with which the patient rallies is often as great as that with which he is subdued, he is gradually rendered unfit for the active duties of life. This preys on his mind, increasing the despondency which makes a part of his disease, and which in its turn, by further debilitating the digestive organs, aggravates all the symptoms. These organs being no longer in a proper state to supply due nourishment, the body becomes emaciated, and more permanently feeble, the strength by degrees rallying less readily and less perfectly after the frequent returns; and what was at first only a temporary depression from a debilitating cause affecting the nerves of the alimentary canal, is gradually changed into real debility, the countenance, which is almost always a sure index of what is passing internally, becoming pale and haggard.

The patient, often from an early period of indigestion, feels some uneasiness on lying on the left side; more rarely this is the case with respect to the right side. In the progress of the disease, lying on either side becomes uncomfortable, and, in its advanced stages, the only easy position is on the back, with the shoulders a little raised, and generally inclined to the right side.

The tongue and other parts of the mouth are variously affected from the commencement. Their secretions become more and more thick and clammy, the former being covered with a white or brownish mucus, which also more or less adheres to, and irritates, the fauces. Sometimes all these parts are more or less parched and stiff; at other times the saliva is morbidly thin and copious, the tongue being cleaner, but often of a whitish and sodden appearance. In protracted cases, when the symptoms have been rather obstinate than severe, and considerable debility has come on, this symptom is often very troublesome, the saliva frequently running from the mouth. In the advanced stages of the more severe cases, there is often a viscid frothy secretion from the fauces, while the mouth in general is drier than usual, which forms a very prominent feature of the disease. The patient is constantly hawking up this matter, particularly after eating, and will tell you that all his food turns to phlegm. This discharge is sometimes so great and harassing as to prove the most distressing symptom, and seems not a little to add to the debility. In some cases the tongue, in the more advanced stages, becomes clean, shining, and morbidly smooth, and at length affected with aphthæ. This state of it is seldom observed except when a considerable degree of fever has supervened, which is not uncommon at these periods.

The skin, in protracted cases, often becomes dry, shrivelled, and sometimes, at length, almost scaly, and the hair is parched and inclined to stand on end; the whole surface is cold, the patient is constantly hanging over the fire, and even experiences frequent fits of chilliness approaching to shivering. He bears all extremes of temperature ill, being as much oppressed by a very high temperature as he is chilled by a low one. Wounds heal less readily than usual; and the skin is not unfrequently affected with a troublesome itching, which often shifts its seat; or with nettle-rash, herpes, and other species of eruptions; and even ulceration sometimes supervenes without any evident cause.

Besides the more transitory symptoms in the head, which have been mentioned, there are often marks of an habitual undue determination of blood to the brain, pro-

ducing languid inflammation of the eyelids, tinnitus aurium, and occasionally throbbing of the temples. Some are oppressed with drowsiness, almost approaching to stupor; others with almost constant pain more or less severe, sometimes in the back of the head, more frequently in the fore part; others are subject to giddiness, and some even to sudden fits of insensibility. The thoracic viscera are often particularly affected; not unfrequently dyspnoea supervenes, and the patient is sometimes harassed by a dry and irritating cough, or with fits of palpitation. When expectoration attends the cough, it is generally difficult, but brings considerable temporary relief. It deserves notice, that, in this stage of the disease, he more frequently complains of pain in the left than in the right side; but the seat of the pain is very various; not unfrequently it is chiefly in the back, about the shoulders, sometimes attended with itching, and in the limbs, more frequently in the legs than the arms. Irregularity of pulse and syncope are not unusual symptoms; and are much to be feared when combined with other characteristics of *angina pectoris*, as they sometimes produce, in the second stage of indigestion, organic disease of the heart. Pain and tenderness of the muscles of the chest is also frequent; and, when this occurs, the patient seems worse at night, and turns in bed with difficulty and pain.

The above history of the first symptoms of indigestion we have borrowed from the accurate work of Dr. Wilson Philip. It remains to trace the sympathetic derangements which grow out of this stage.

It is to be premised, that, when nerves are irritated, and sympathetically affect distant parts, the latter, however influenced, return to their natural state when the nervous excitement is removed. Of course, as the altered state of the nervous influence will accelerate or impede the contractile powers of vessels, the phenomena of inflammation may occur, and the same excitement continued may produce the consequence of inflammation. It follows therefore, that, if the nervous expansion of the stomach be irritated, and cause distant disorders, we may cure those by removing that irritation: but if, from its long continuance, or from the nature of the affected structure, irritation degenerates into inflammation, we have further indications to fulfil. Of this fact experience convinces us every day. We have to correct the morbid state of the secondarily-affected part, as well to remove the first cause.

The first derangements are what we have to consider at present. The subject has been ably treated of by Dr. Marshall Hall, in his Essay on the MIMOSIS; a name which, as its origin implies, designates a state which *mimics*, or resembles, other diseases.

The above-mentioned author has however used this term in a very extended sense; he has included in it many diseases where idiopathic disorder had become established. For our own part, we shall restrict the term to those affections which are propagated by nervous influence, which do not implicate permanently the vascular structure, and which subside on the removal of indigestion. Used in this sense, it characterises the affection in question with great force and faithfulness; and conveys a clear idea of the difference which we find in the mere sympathetic disorder, and those more serious affections which, arising from longer-continued or severer forms of dyspepsia, or from these and the morbid predispositions of their own seats, require mixed methods of treatment: i. e. such as immediately influence the circulating as well as the digestive function. But, ere we enter on this branch, we must again remind our readers, that we consider *Dyspepsia*, in all its immediate as well as remote symptoms, as a disease incapable of regular arrangement. In proportion as one or other of its numerous causes are applied, in proportion as the remedial indications are wrong or misplaced, will it appear in the marked and severe characters of the second stage, without

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exhibiting any traces of what we have called its first. And, besides this, if morbid predispositions are existent in the remote structures, idiopathic diseases will occur in them, as soon as the nervous excitements we have just spoken of are applied to them; and thus show the fallacy that will attach to the unrestricted notion, that the sympathetic disorders of the first stage of indigestion are so purely nervous as not to produce real topical inflammation in some cases. We are convinced however, that, as the division we have made will be found good in the generality of cases, it is better to adopt it than run the various remote and local symptoms of indigestion into one another without order. The anomalies we shall notice will easily be remembered; and, though their *confusion* (if we may use the expression) must undoubtedly take from the uniformity of arrangement, we consider that far better than that we should fail to represent with fidelity, and to the best of our knowledge, the true phenomena of nature.

To return, however, to the *mimoses*. The common and distinguishing symptoms of these affections are, that, while in idiopathic disease a peculiar and perpetual state of disorder is found, or at least a state which exhibits regular intermissions and paroxysms, these complaints exhibit no regularity whatever; that, while in idiopathics one great and predominant symptom arrests the attention of the patient, and often of the practitioner, in this the disease is complicated, affects for a time one structure, then another; and indeed manifests all those appearances which we should expect in merely excited states of the nerves, without inflammatory action. As it is impossible, on account of the multiplied groups of symptoms which may occur in these affections, to detail all their forms, we shall confine ourselves to a general review of their nature as they occupy the nerves of the grand systems, or parts.

The first we shall consider is the *brain*. Here we find many states arising from this cause, very closely resembling disease of the vascular system; and it must be remarked indeed, that the latter state is more frequently induced by nervous excitement in the brain than in any other part. The most common symptom is *faintness*. This is the most ordinary nervous excitement, since it occurs in the simplest derangements of the nervous power. The circle of sympathies in this case, sudden and simultaneous as it undoubtedly is, is complex. The stomach affects the head, the head the function of respiration, the latter the heart; and, this last failing duly to impel the blood into the cerebral structure, *fainting* takes place. A further consequence of this state is *languor* of the muscular system from torpid circulation in the brain; and the same torpidity will likewise influence the secreting powers. The irritant of the stomach being however removed, all these effects cease. But, where a continued dyspeptic state exists, these effects become more permanent, which readily explains the fainting, languor, tremor, &c. which are attendants on the first stage of indigestion, and which are easily removed with that complaint. With regard to the languor, it is to be remarked that between languor arising simply from the cause we are speaking of, and between that which supervenes in the more advanced state of indigestion, a great difference exists: for, while the first merely depends on the interruption of nervous influence, the latter probably owes its preference to some alteration in the contractile power of the muscular fibre. However this may be, the difference between real and apparent debility is allowed by the best practical writers.

We have no knowledge why stomachic irritation applied to the brain causes sometimes one, sometimes another, kind of disorder of that organ; why one man feels temporary blindness, another debility, another delirium, and so on. We have certainly no means of knowing whether this takes place because the applied irritants act only on particular parts of the cranial structure, or whe-

ther the nature of the irritants alters the nature of the sympathetic disease. We have good reason to infer both of these circumstances. The first, however, is a speculation of no use in practice: the latter may be so in a slight degree, because we shall find that, in the inflamed state of the stomach, the inflammation will more readily arise in the brain; while, in the case of mere nervous irritation, that state will be less frequently found. The most formidable appearances which are complicated with irritation of the gastric nerves are those of epilepsy and apoplexy. Slight degrees of hypochondriasis, too, likewise occur; but these are unfrequent in the first stage of dyspepsia. A threatened attack of apoplexy of this kind is often obviated by the exhibition of a strong purge. Where it once takes place, or where the pulse is the same as we commonly find associated with that state, bleeding, &c. will of course be had recourse to likewise. We mention this here, to remind the reader of the great necessity of procuring evacuations by emetics and purgatives when this form of apoplexy exists. It is this kind of apoplexy which so often and so fatally attacks persons retiring to bed after a *hearty supper*; an occurrence lamentably frequent in the daily records of our times. A sudden attack of epilepsy has often been induced by the same causes. The purgative treatment is extremely beneficial, as well as in states of insensibility and delirium, loss of memory, blindness, &c. suddenly supervening to these digestive derangements.

A peculiar state of the brain is often induced by irritation in the alimentary canal, which has been called by Dr. Nicholl, the first author who has given a clear view of it, "*Erethism of the brain*." According to the experience of that author, it seems that it chiefly occurs in children. Such a state, however, is often met with in patients afflicted with indigestion at more advanced ages. Dr. Nicholl thus describes it: "There is a state or condition of the cranial brain in infants, which may be called a state of irritation, an irritated state, or, in one word, *erethism*. What this peculiar condition of the cerebral structure is, I cannot explain. It is a state distinct from that which is called inflammation of that structure, for it may exist without any perceptible increase of the quantity of blood that flows through the cerebral blood-vessels; it is a state under which inordinate effects arise from ordinary impressions upon different parts of the nervous system. In its perfect form, and under a high degree of it, it is a highly sensitive condition of the cranial brain, a condition the very reverse of that under which sleep occurs. Under such a condition of the cranial brain, the child is wakeful, scarcely ever sleeping; it is attentive to every sound, and to every object of sight; its temper is irritable; the retina is highly sensible to light, so that the child winks if its face be turned towards the window, or towards a candle; the pupil is, in many instances, more or less contracted; but this is not always the case. The limbs are much in action; the head is often moved about, or is shaken from side to side; the child cries without any apparent cause, and it is soothed only by tossing it, by carrying it about, by putting it to the breast, or by letting it suck the cheek of the nurse, or its own fingers; the secretion of tears is, in many instances, increased, causing suffusion of the eyes, and redness of the edges of the tarsi; the secretion of the schneiderian membrane may be increased, causing a stuffed state of the nasal passages, producing sneezing, and exhibiting the appearance of that state which is popularly called a *cold*. The bowels are, in many cases, relaxed; yet no disordered state of the stools may appear. During such a state as I have described, there may be a degree of animation; and a quickness of observation, much beyond what are commonly met with in children of the same age: so that, although a morbid condition of the cranial brain be present, the child may be considered as particularly healthy, on account of its being wakeful and lively, and sensible to the most

most trifling impressions. But it frequently happens, that an attentive observer may detect other symptoms: the child may start in its sleep; it may be very readily awakened; when awake, it may start at the slightest noise, as at the shutting of a door, moving a chair, passing the finger over the wicker-work of its cradle, or on being slightly moved, or touched gently; a sudden frown may pass over the forehead, and may quickly disappear; the eyes may be closed irregularly, or alternately, or a winking of one eye, or frequent winking of both eyes, or a firm closing of both eyes, may be from time to time detected; the hand may be raised frequently to the head; the child may cry, without any evident cause, as if it were pricked with a pin; at other times, it may shriek; the fists may be clenched, the thumb being bent in, and laid flat across the palm of the hand, the forearms being bent upwards on the arms. Should a similar condition of the spinal brain be present, the child may be bent backwards, presenting a state of *opisthotonus*; its legs may be drawn up, while the head is thrown backwards."

There is another form of infantile erithism characterized by want of animation, fretfulness when roused, want of sleep, and yet "a state that can hardly be called waking;" indifference to surrounding objects, pallor and chilliness of the body, rolling of the eyes, plaintive moaning or shrieking, agitation of the hands, and other minor symptoms; which our author denominates *torpid erethism*.

Scrofulous children have generally the greatest tendency to cerebral erithism; and, where this tendency exists, the slightest irritation of the nervous system will call it into action. In the milder forms and earlier stages of this affection, the symptoms which it produces may be great wakefulness, great sensibility to slight impressions, with restlessness and high animation.

It is to be remarked, that irritants applied to any of the nervous expansions may produce erethism, so that it is just possible that it may arise independent of gastric or intestinal disorder. It is to be noticed likewise, that this state is extremely liable to run into inflammation of the brain and hydrocephalus, which it sometimes resembles in the closest manner, particularly where worms are the irritants applied.

The *respiratory function* is often much disordered by dyspepsia. Paroxysms of oppressive dyspnoea come on, which very closely resemble asthma; so closely indeed, that it is only by attending to the increase of the symptoms after eating, to its history, and the state of the alimentary canal, that we can establish a diagnosis. And it is not improbable that asthma properly so called, frequently, if not generally, originates in a complication of this nature; but is afterwards continued, or repeated, either from a degree of disorganization induced in the heart or lungs, from the influence of the external causes of asthma, or from the causes of indigestion.

The *affections of the heart* which occur in consequence of the *Mimosis acuta*, are fluttering, palpitation, and irregular action. Fluttering and palpitation of the heart are amongst the most frequent symptoms. To establish a correct diagnosis in the severer cases it will be necessary to watch the effect of the remedies in removing this disorder. The palpitation of the heart, if a consequence and effect merely, will be mitigated or removed with the original affection. In the less severe form of this complaint, the discrimination must be principally founded on a cautious observation of the effect of bodily exercise on the action of the heart, when the symptom of palpitation is otherwise absent, and when the patient is least indisposed, and on the continued history of the complaint. In disease of the heart, it is bodily exertion and mental agitation which renew and recall this dreadful disease; but, in the complication of dyspepsia with palpitation, the patient, if not prevented by weakness, can, at the time when the hurried movement of the heart is absent, run pretty rapidly, or walk up stairs, without suffering more than is usual;

and periods occur when he has passed several days, weeks, or months perhaps, without experiencing the palpitation. In a disease of the heart, these circumstances are by no means observed; the uneasy sensations which accompany this disease, if absent at times, are always excited on any corporeal exertion; and, moreover, disease of this organ is in general highly characterized, and distinguished from certain symptomatic disorders of its functions, by the *permanency of the affection*; by its *invariable aggravation* on muscular exertion, as well as mental emotion; and by the particular relief obtained at first from blood-letting. Disease of the heart, although its symptoms may be mitigated at one period and aggravated at another, is however *permanent*; the symptoms are never entirely absent; and they may at any time be renewed, in an aggravated form, by muscular exertion. In dubious cases, the patient may be made to *run up stairs*; the symptoms of an organic disease of the heart are invariably aggravated by this muscular exertion, the pulsation of the heart becoming violent, the pulse perhaps irregular, the respiration exceedingly difficult, &c. circumstances not equally observed in symptomatic derangements of the functions of this organ, unless when they are attended with great debility. There is almost always, too, great but transitory relief from blood-letting, in a degree not observed in the symptomatic affections.

The affections of the *muscular structure*, independent of the debility, &c. just noticed, are partial paralyses, such as are termed *spasmodic*, among which tetanus often appears. The best illustration of this state is afforded by the history of hysteria, when it arises from gastric irritation. The absurdity, however, of applying the term *hysteria* to a disease which does not at all implicate the uterine system, and which even affects men, is obvious enough: we shall therefore use the term of Dr. Hall, viz. *Mimosis urgens*, and reserve the term hysteria to designate symptoms of uterine irritation. The *Mimosis urgens*, then, is generally denoted by combining some considerable emotion of the mind, denoted by sighing, sobbing, tears, or laughter, with a sense and expression of suffocation, and with some urgent affection of the head, heart, respiration, stomach, or muscular system, and a peculiar and high degree of hurry, and apparently imminent danger.

Of the *Mimosis urgens* there are three forms, the mild, the severe, and the inveterate; and there are most numerous modifications.

1. The mild form of the *Mimosis urgens* subsists as a tendency to alternate high and low spirits, to fits of laughter, to frequent deep sighing, and to tears. A fit of laughter, or of crying, sometimes takes on an aggravated character; the laughing, or the sobbing, becomes immoderate, convulsive, and involuntary, and there is frequently a peculiar spasmodic chucking in the throat. The countenance changes, being alternately flushed and pale, and denoting great anxiety. There is frequently an urgent difficulty in breathing, with much rapid heaving of the chest. Sometimes a dry, spasmodic, and violent, fit of coughing occurs. There is generally a sense, an appearance, and an urgent fear, of impending suffocation. In different instances there is palpitation, hicough, retching, or borborygmus. The patient is despondent, and aggravates all her sufferings.

2. The severe form of the *Mimosis urgens* consists in a various attack, catenation or combination of the following symptoms: The commencement, course, or termination, of this and indeed of every form of the *Mimosis urgens*, is generally marked, and the case distinguished, by the signs of some inordinate mental emotion, (joy, grief, or other affection,) which constitute the most characteristic symptoms of this disorder. The attack is frequently ushered in by an unusual appearance of the countenance; a rapid change of colour, rolling of the eyes, distortion or spasmodic affection of the face. The extremities are apt to become very cold. A state of general

ral or partial, of violent or of continued, convulsion, or of fixed spasmodic contraction, takes place, and displays every possible variety in mode and form. The severe form sometimes consists chiefly in a general or partial pain and throbbing of the head. Occasionally this pain is confined to one particular spot, and is so acute as to have obtained the appellation of *clavus hystericus*. Sometimes there is intolerance of light and noise; sometimes a state of stupor; sometimes delirium. The respiration is frequently much affected: an oppressive and suffocative dyspnoea takes place; or the breathing is rapid, anxious, and irregular; or variously attended with sobbing, sighing, much rapid heaving of the chest, and sometimes with a spasmodic action of the diaphragm, inducing a peculiar elevation of the abdomen, or an equally-peculiar succussory movement of the trunk in general; sometimes the respiration appears to be suspended altogether for some time, the pulse continuing to beat as before.

A crowing noise, or screaming, is apt to occur in this affection. There is, occasionally, hoarseness, or even an entire loss of the voice, continued for some time. There is sometimes a painful, violent, dry, hoarse cough, continued, or recurrent in paroxysms. There is occasionally acute pain of the chest or abdomen. Palpitation of the heart, and syncope, are also usual affections. The pulse is otherwise little affected. There is frequently an urgent sense of suffocation, accompanied with the feeling of a ball ascending into the throat; this symptom is so peculiar as to have obtained the denomination of *globus hystericus*, and is considered as diagnostic of this affection. Hiccough, and violent singultus; retching and vomiting; the sense of a ball rolling within the abdomen; borborygmus; a peculiar great and sudden tumidity of the abdomen, apparently from flatus; constipation, &c.

3. The inveterate form of the *Mimosis urgens* (*id enim vitium quibusdam feminis crebro revertens perpetuum evadit*) consists sometimes in an almost-perpetual agitation of some part of the body, the limbs, the respiration, the throat, or the stomach; and sometimes in a state of continued contraction of the hand or foot, or of some other part. In different instances too, there is a continued state of nervous agitation from the slightest noise or other cause; of paralytic, epileptic, or spasmodic, disease; or of imbecility of the mind. In short, this affection is characterized, by affecting in the same or in different instances, singly or conjointly, all the several systems which constitute the human frame; the organs of animal and of organic life; the different sets of muscles, voluntary, involuntary, mixed, and sphincter; the faculties of the mind, and the emotions of the heart; the functions of the head, the heart, the stomach, &c. "It is in thus viewing the *Mimosis urgens*, that the diagnosis is often formed between its different and very-various attacks, and other affections having a different origin, but of which it is the *imitator*, *nam nullos fere non emulatur ex iis affectibus quibus atteruntur miseri mortales*." Hall, p. 162.

The diagnosis in *Mimosis urgens* is founded partly on the peculiar and different appearance of the particular cases, and partly on the precursory, concomitant, or successive, occurrence of some unequivocal symptom, and especially of the appearances of mental emotion, &c. before noticed; and of hurry and apparent urgency of complaint in general. It is, in particular, in this manner that the paroxysm of convulsion in the *Mimosis urgens* is to be distinguished from epileptic or puerperal convulsions; for, though the appearances are very similar, there is probably some symptom of mental emotion, or some appearance peculiar to the *Mimosis urgens*, especially the hurried and heaving respiration, or some circumstance in the history of the attack, which may lead to the diagnosis. Otherwise the physician must wait awhile, and watch the course of the affection, and the succession of symptoms; in this manner some symptoms decidedly peculiar to the *Mimosis urgens* will occur to prompt the

discrimination. In the epileptic or puerperal convulsion, there is an *absence* of these symptoms of mental emotion, as joy, grief, &c. and the patient seems to be rather a prey to some power which exerts a violent empire over the source of sense and muscular motion. The *Mimosis urgens* may excite alarm; but the epileptic or puerperal convulsion presents a far more dreadful aspect; the face perhaps becoming deeply flushed and livid, with foaming at the mouth, more shocking distortions of the countenance and of the body, and a very different and a more serious affection of the respiration. By such means these affections will generally be distinguished.

The occurrence of delirium is not very frequent; but Dr. Hall has witnessed it repeatedly. The case is identified by the occurrence of some symptoms peculiar to the *Mimosis urgens*.

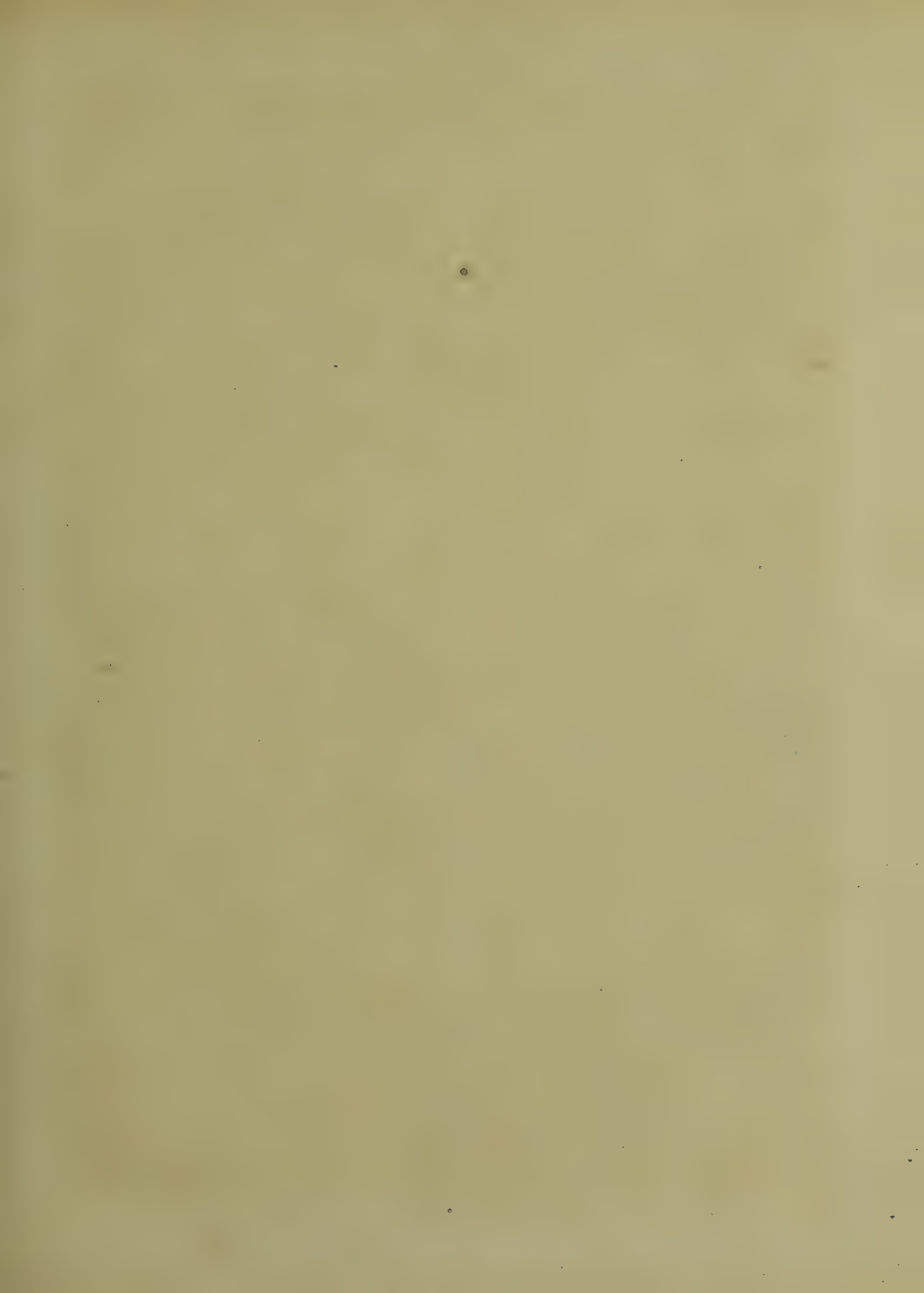
The occurrence of stupor as a form of the *Mimosis urgens* is by no means unfrequent. Dr. Hall relates the following cases: "Some time ago I received an urgent call to visit a poor woman said to be in an alarming state of insensibility. She was without sense or motion, but, in other respects, unaffected with any particular symptom. The medical attendant had prepared his lancet to open a vein in the arm. In a short time, however, the patient recovered herself, and manifested symptoms which are peculiar to the *Mimosis urgens*.—In another case which occurred in an aged woman, a vein had been opened, under the idea that she was affected with apoplexy. Some symptoms of an anomalous kind occurred, and she became affected with an unequivocal attack of the *Mimosis urgens*.—In similar or dubious cases it is proper to wait, and observe the change of symptoms; and particular inquiry must be made into the history, mode of attack, &c. of the affection. Perhaps the patient soon opens the eyes, sighs, is affected with dyspnoea, or bursts into tears. In general some unexpected and anomalous symptom occurs, to denote the nature of the affection."

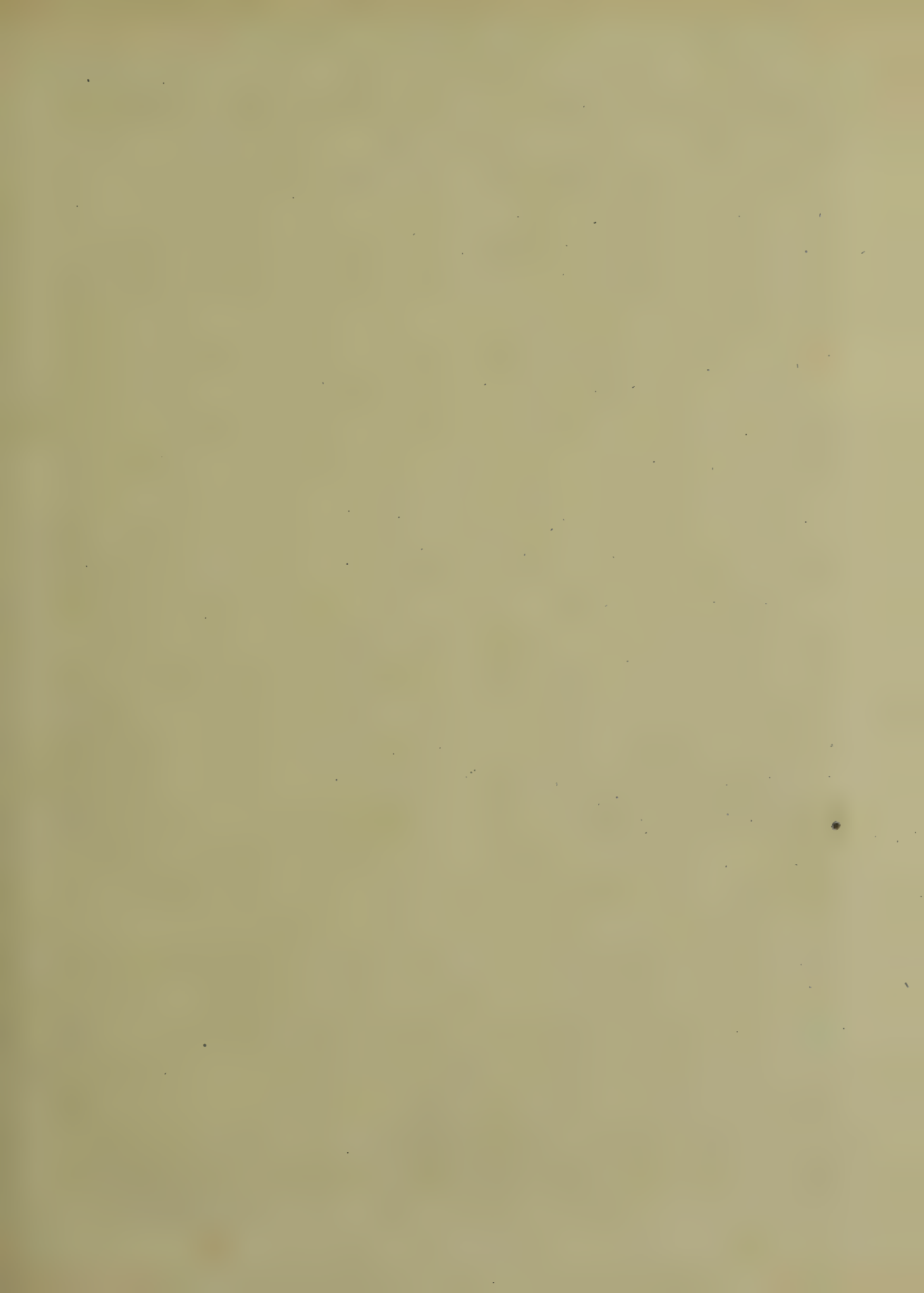
In pain of the chest in *Mimosis urgens*, the countenance is expressive of great anxiety, hurry, and agitation; and the nostrils are moved with rapidity. The patient complains much, manifests great impatience, is urgent for relief, and calls out from the pain. The pain of the chest is extremely acute, and the part affected is described as excruciatingly tender on being touched, and the hand applied to it is usually pushed rudely away. With or without the pain of chest, there is often an urgent dyspnoea; the respiration is rapid, hurried, with much characteristic heaving of the chest, sometimes with great and rapid movements both of the chest and abdomen, and often with a peculiar hissing noise.

Cough occurring as a form of the *Mimosis urgens*, comes on in continued fits; it is frequent, hoarse, and hissing; "*æger creberrime tussit, fere sine intermissione, nihil prorsus expectorans*." Hall, 176.

The affection of the diaphragm in the *Mimosis urgens* is attended by the most acute pain in the epigastric region, extending to each side along the false ribs, and to the back; it is augmented occasionally by moving, or by the action of the diaphragm in respiration, and causes the patient to cry out. The respiration is irregular, perhaps performed by the chest alone; the nostrils move, the face is sometimes flushed, and there is often shedding of tears. These cases are distinguished from inflammation, by the occurrence of symptoms peculiar to the *Mimosis urgens*; the mode of attack, which is sudden; and the general aspect of the case, which is hurried and urgent; contrasted with the usual characteristics of inflammation.

The imitation of croup by the *Mimosis urgens* takes place in such a manner as to deceive a cursory observer. The respiration and cough have precisely the character of these symptoms as occurring in inflammation of the trachea. It is by inquiry, waiting, and by cautiously observing the case, that the diagnosis is to be instituted. On inquiry, the attack will probably be found to have been marked by some symptom or character of the *Mimosis*





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mois urgens; or, by waiting, some such symptoms may occur to develop the mystery. The case is sometimes so urgent as apparently to demand an operation to prevent an impending suffocation. We quote the following case: "In a young woman, aged fifteen, the first symptom which arrested the attention was a stridulous sound of the respiration; and circumstances conducted to render an attack of an inflammatory nature probable. She had been conveyed through the cold air, and appeared to be livid from cold. On being seen in bed, however, the nature of the disease became obvious, from the presence, then, of globus; from the history, by which it was ascertained that other symptoms of the *Mimosis urgens* had occurred; and from the absence of any affection of the pulse. The patient was speedily relieved by the operation of a purgative medicine." Hall, 177.

The pain of the abdomen in the *Mimosis urgens* is attended with great urgency of complaint; much anxiety and suffering; an extreme tenderness to the slightest touch, rather than under pressure; an hurried and irregular state of breathing, &c. The countenance is expressive of an urgent anxiety; the patient is restless, impatient, and irascible, and pushes the hand, although gently applied to the abdomen, rudely away; the general surface, and the pulse are, at the same time, little affected; there is sometimes vomiting, or a sort of retching; the bowels are generally constipated. The hic-cough or the retching is sometimes of the most violent kind, and is apt to be long continued. Dysury, or retention of urine, is also common as a form of the *Mimosis urgens*. Its duration is usually short. But it has continued occasionally for a long period. It is distinguished by being combined with other symptoms of this affection.

It must not be forgotten that the stomach, when its contents irritate the nervous expansions, and the irritation is propagated to the brain, that organ reacts on the stomach, and produces pain and spasm in various parts of the alimentary canal, which are not topically diseased: as for instance a slight contraction of the rectum, of the œsophagus, spasm of the gall-duct, *mælena hæmatensis*, &c. But these are generally so obviously connected with the presence of dyspeptic symptoms, that we need not take particular notice of them.

Of the Second Stage of Dyspepsia.—The first stage of indigestion having continued for some time, or an erethematic inflammation of the stomach, or any of the various causes capable of inducing inflammation, being present; the second stage of indigestion makes its appearance. The passing of the first stage into this is denoted by various signs; some taken from the nature of the gastric or intestinal derangements, but chiefly from the nature of the sympathetic irritations. With respect to the former, the stomach betrays symptoms of chronic inflammation; and the intestinal excretions, hitherto irregular, for the most part assume deficiency of colour or consistence of a more permanent kind. The state of nervous excitation, in which sympathizing parts have been long retained, brings on a more permanent change in the sanguineous structure, or secretion, becomes disturbed in the same continued manner in particular parts. The topical affections are less changeable and varying. The mind, losing the petulant nervousness of the first stage, feels all the imaginary hurry and the anxiety of hypochondriasis; the symptoms are less under the control of medical treatment; every thing, in a word, assumes a more fixed and continued form. The great pathognomonic sign consists in a permanent tenderness, on pressure, of the soft parts close to the edge of the cartilages of the false ribs on the right side, after they have turned upwards to be joined to the sternum. This spot is often very circumscribed, and always lies about half-way between the end of the sternum and the place at which the lowest of the cartilages begins to ascend; and the cartilage itself near the tender part often becomes very tender, not unfrequently indeed much more so than the soft parts.

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The patient in general is not aware of this tenderness till it is pointed out by the physician. There is often, we have seen, a degree of fullness in the right hypochondrium at earlier periods; but it is then more transitory, being generally relieved and sometimes removed by the effects of cathartics, and, not unfrequently, spontaneously disappearing and returning again. The tenderness above mentioned never exists long and to any considerable degree without the pulse becoming hard, and it often at the same time becomes rather more frequent than in health.

Sometimes the hardness of the pulse is so well marked that it is easily distinguished, but more frequently the hardness is only to be distinctly perceived by examining the pulse with the utmost care. See our remarks on the manner of distinguishing the *hardness* of the pulse, in the present article, p. 94. The tenderness of the epigastrium, after it has lasted for some time, generally begins to be attended with some degree of fullness in the part, and to extend downwards along the edge of the cartilages, till at length there is a degree of fullness, and sometimes tenderness, throughout the right hypochondrium, which feels firmer than the left; but the tenderness is seldom so great as in the part of the epigastrium above described. Sometimes the pressure, both there and in the hypochondrium, rather produces a sense of oppression, affecting the breathing, than pain. Sometimes, particularly in the epigastrium, it occasions pain passing through the body towards the back, sometimes quite to the back, at other times a fixed pain or sense of oppression under the sternum, and, in some cases, a pain extending to the left side.

The tenderness of the epigastrium, as well as the hardness of the pulse, are perceived most clearly when the patient has been taking exercise; muscular action, as might be expected, increasing the phenomena of inflammation. We must not forget to remark, with respect to exercise, that its performance is often attended with much uneasiness, all motion except of the passive kind producing an insupportable degree of languor. This obtains chiefly, however, in the more severe forms of the affection, the slighter ones being usually free from it.

These symptoms are generally accompanied with others indicating some degree of feverishness. The chilliness of which the patient has long complained is now sometimes, and independently of any change of temperature in the surrounding medium, interrupted by languid and oppressive fits of heat; and the hands and feet, instead of being uniformly cold, as in the earlier stages, often burn, particularly during the first part of the night, while at other times they are more obstinately cold. The thirst also often increases; and sometimes there is a tendency to partial sweats in the morning, especially if the patient lie longer than usual; and these symptoms are generally attended with an increase in some of those of the first stage.

The inflammatory state of the stomach proceeding unobscured, organic changes are soon induced, and thickening of its coats; ulcers, scirrhus, and a variety of structural derangements, occur. More frequently, however, the inflamed state of the stomach and bowels subsides, while the organs to which this disturbance has been propagated undergoes the structural disorganization. The liver, lungs, spleen, pancreas, lower bowels, mesenteric glands, heart, and brain, are said to be most obnoxious to this occurrence; but it cannot be questioned that every part of the body is liable to the same changes, and from the same causes. Sometimes one of these parts is affected, sometimes many; and it is to be remarked, that, in consonance with the known laws of pathology, when disease establishes itself firmly in a second part, the first is relieved from it. Indeed there seems this further difference between the mere nervous excitement which supervenes to the first stage of *Dyspepsia* and the inflammatory affections we are now treating of, that, while the

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former tend to keep up and increase the original disease, these (the latter) act on that which excites it in the same manner as a counter-irritant is known to do, though unquestionably in a much more effectual manner. Thus, it is not uncommon in indigestion for the liver to suffer in such a manner, that it shall become enlarged and tender on pressure; and, when the disease is destroying the texture of the lungs, having spread from the liver to them, for the former to recover, or nearly recover, its healthy state. And thus an extensive external disease, occurring in such cases, will often save the vital organ, even after the disease has made considerable progress in it.

It is obvious, then, from the foregoing remarks, that the treatment of all diseases remotely traceable to indigestion are not to be discussed in this place; nor are the disorganizations of the stomach to be treated of here; as each of these form distinct species, and require separate consideration. It only remains therefore to trace the disordered states of the sanguineous and secretory functions arising in the second stage of Dyspepsia; and to notice the general indications for the relief of the local, and the particular indications for the cure of the general, disease.

For the reasons stated in p. 108, we shall forbear to mention all the complaints traceable to the confirmed stage of indigestion. Indeed it would seem from what we have there remarked, that, as these propagated complaints are literally the complaints of the sanguineous and nervous structure of the parts affected, they are distinct and idiopathic; that they are inflammations, however induced; and therefore to be met with the usual remedies for that action. But practical considerations (which should supersede all other) induce us to notice certain cases in which experience has shown that the most marked and serious forms of chronic inflammation, and of diseased secretion, have been cured by the medicinal treatment of dyspepsia; and we think that, when the laws of sympathy are better known, this division will appear no less philosophical than practical. We have before adverted to the impossibility of drawing an accurate distinction between inflammations which, though produced by nervous irritations, are rendered permanent by their own diseased tendencies, and those which are merely sympathetic. And, in the cases we are about to consider, probably a still greater difficulty of diagnosis exists. The difficulty in these cases is to establish how far, when the original cause of dyspeptic disease is removed, the parts will return to their natural state.

Reasoning à priori, we should conclude, that the operation of this cause could not extend beyond inflammation and altered secretion; but experience has clearly shown, that, nervous irritation being removed, disorganized parts undergo reparative processes, and in an astonishing manner may resume their natural structure.

In the nervous system we remark, that the head is influenced in this disease in a manner decidedly inflammatory. This inflamed state of the cerebrum, in the second stage of indigestion, is well shown by head-ache, by increased hardness and fulness of pulse, and by the increased pain which the recumbent posture produces. As it advances, various forms of mental disturbance become manifest. In this form of disease we must be especially careful not to let our notions of the dyspeptic origin of the disease weaken the vigour of our practice; for local and (when the state of the circulating powers demand it) severe general depletion are necessary here, as in idiopathic diseases; and indeed, as this is the part where the most intimate connexion between the sanguineous and nervous systems takes place, we should naturally expect to meet with this fact.

It sometimes happens, in this second stage, that the head-ache assumes a chronic form, continuing for weeks, or even months, without being very severe. Both local and general blood-letting then very frequently fail to give permanent relief. The best means are those which support an habitually-free action of the bowels and skin,

(and most effectually correct the disease of the digestive organs,) and permanent drains from the neighbourhood of the head.

There are two occurrences which ought ever to be present to the mind of the practitioner: the first is the tendency to the transition of nervous into idiopathic inflammation, which is particularly observed with regard to the head; the second, the possibility of the co-existence of the two states.

The transition of the affection of the head in Dyspepsia into an idiopathic inflammation, or the co-existence of the latter affection with the former, is to be apprehended on the occurrence of any of the following symptoms in a serious degree and continued form: A sense of flushing or fulness about the head; acute pain of the head; unusual heaviness, dull head-ach, or vertigo; drowsiness, stupor, disturbed sleep, delirium, incubus, stertor; forgetfulness, timidity, confusion of mind; change of affections; tendency to laughter, and tears; affection of the senses, as temporary loss of sight, flashes of light, double vision, singing or loud noises in the ears, intolerance of light, or sound; tenderness of the scalp. Many of these symptoms, however, occur in the first stage. It is only when they exist in an eminent degree that they denote danger. But it is best to take an early alarm. The danger of compression of the brain is unequivocal on the occurrence of an unusual distortion, or an unmeaning expression, of the countenance; of a defect in articulation; of a temporary numbness or torpor, or of transient and partial weakness of any of the limbs; especially if one side of the body alone be affected. The occurrence of stupor, convulsion, paralysis, or relaxation of the sphincters, leaves little to doubt respecting the existence of this fatal occurrence.

In some cases, the *erethisinal* state of the brain before noticed puts on a more marked and formidable appearance; and it is not very unusual, when this disease has continued some time, to see the patient, after more severe attacks than usual, and sometimes without this warning, suddenly fall down, and in a few hours, and in some cases almost immediately, expire. In such cases the aids of medicine are vain. The powers of the constitution are not oppressed by disease, but worn out by its continuance. This is what, in contradistinction to apoplexy arising chiefly from the state of the vessels, is properly termed *nervous apoplexy*, the most fatal of all its forms; and it has been remarked, that in some cases no morbid appearance presents itself on dissection: the fatal derangement is in the nervous system alone, whose structure is too minute for our observation. If the usual plan of bleeding in cases of sudden insensibility be here resorted to, the disease is only the more suddenly fatal.

The state of the brain in such cases resembles that which surgeons call *concussion*. Its mechanism is deranged. The difference is, that in the one this mechanism is deranged by a sudden and violent cause, applied while the powers of the system are entire; and which, consequently, if the little strength that remains be carefully husbanded, may often repair the injury: the other is the effect of a succession of slight causes gradually changing the mechanism of the brain, and at the same time exhausting the powers of every other part, so that the constitution possesses no means of repairing the injury. The pure nervous apoplexy, however, as here described, is an extremely rare disease; because it very seldom happens that the causes continue long enough so to derange the finer mechanism of the brain as to produce loss of function, without influencing the state of the circulation in it in such a manner as to produce a fatal effect in this way.

It more often happens, that disease of vessels causing apoplexy is produced; and it is worthy of remark, that in this state a pallid countenance is usually met with. This circumstance occurs occasionally in all the forms of apoplexy; but we think it is more particularly noticed in this than in any other. Dr. Philip says, "I have repeat-

edly seen, in an exhausted constitution, the face become suddenly pale, and all power lost; the patient falling down insensible, and the countenance continuing to increase in paleness till it assumed a cadaverous hue; and yet this patient has been immediately restored to the use of his faculties, the paleness of his countenance at the same time abating, by the loss of blood; and there is every reason to believe would have died without it. For it is evident that the apoplexy we are considering is of a different nature from distention of the vessels of the encephalon arising from general fulness; and therefore loss of blood from the head, and that only to such an extent as relieves the symptoms, is alone proper; the incautious use of general blood-letting in such a case being also followed by a degree of debility which further disposes to returns of the attack, as well as to other diseases."

The effect of the gastric irritation in debilitating the vessels of the head, might be illustrated by many facts: it is enough to mention the flushing of the face which occurs to dyspeptics after dinner.

Of the nature of *epilepsy* so little is known, that any attempt to trace its connexion with indigestion must be futile; nor indeed does there appear any real difference in the disease, let it arise from what cause it may.

The most chronic and inveterate form in which the brain is affected through the gastric media, is that of *hypochondriasis*. We shall reserve our speculations as to the nature of this complaint till we come to the class *Neurotica*, in which we shall take up the subject of nervous irritations arising from indigestion on a more extended scale. It will be sufficient at present to state, that in considering the mutual action of one part of the system on another, the state of the mind deserves particular attention in indigestion. The disease itself we have seen seldom fails to render it anxious, irritable, and apprehensive; and this state of mind, which we have found ranked among its causes, cannot fail to influence its symptoms.

The affections of the muscular system which supervene on this stage of indigestion, are of a gouty or a rheumatic nature; and, like other inflammatory affections, they present less indication of plethora when dependent on gastric disturbance, than when they arise from other causes. It must not be forgotten, that an ill state of the abdominal viscera is always connected with chronic rheumatism; a circumstance which induces us to defer tracing the connexion, or noticing the peculiarities, of that dyspeptic variety in this place. We shall remark, however, that, where a tendency to gout exists, disease may be induced by any cause that produces, and for a certain time keeps up, indigestion. In some the disposition to gout is so great, that it appears without being preceded by symptoms of derangement in the first passages; but in the majority of cases it is preceded by these symptoms, and the tendency to them seems to constitute a considerable part of the hereditary disposition to gout.

The regular forms of this disease, not affecting a vital part, tend less to derange the system in general, and give more relief to the primary disease, than most of the other symptomatic affections which have been enumerated, the patient often remaining well for some time after; and, the more cautious he is in preserving the vigour of the digestive organs, the longer interval he enjoys. Hence appears the danger which attends interrupting the regular fits of gout: the sympathetic disease, being prevented from taking the course which the disposition to affection of the extremities gives it, seizes on the part, generally an internal one, which next to these is most liable to disease; and, on the other hand, if any thing so affects any of the vital parts during a fit of gout as to render it considerably the weakest part, the sympathetic disease sometimes leaves the joints and seizes on the internal part, producing what is called *retrocedent gout*. It is evident that the risk of both these accidents will be greatest, where the powers of the system are most impaired.

The muscular system is likewise affected in some cases by a permanent and gradual debility, by tremor, and by loss of substance. The latter circumstance is much dwelt upon by Dr. Hall, who weighed several of his patients, with a view to more correct information on the subject. It will be found, however, that some dyspeptic patients retain their embonpoint, notwithstanding much functional disturbance.

The patients of indigestion are usually affected with great tremor, observed sometimes in a quivering of the lip, or dimpling of the chin, but more usually, on holding out the hand, or in carrying a cup of tea, for instance, to the mouth, on attempting to stand erect or walk, or on being fatigued or hurried. The tremor, in some protracted cases, has formed the most remarkable feature of the affection; in others, it has been much less observed, but it is rarely, if ever, entirely absent.

The debility which now comes on is, as we have before observed, of a different nature from that merely nervous inaction which happens in the early stages of the complaint. The latter is the mere want of nervous stimulation, while the former seems to be a change in the contractile power of the muscular fibre, probably derived from the morbid state of the blood, and indicating much danger.

The heart is often affected in the second stage of indigestion, in various and severe modes. The palpitation which in the first stage was merely nervous, in some instances now becomes so obstinate, as to assume the form of angina pectoris, carditis, &c. and, being accompanied with an increased hardness of pulse, can only be relieved by loss of blood.

Dr. Philip has noticed a connexion between rheumatism and this sort of carditis. He says, "It is a common observation, that carditis is apt to supervene after repeated attacks of rheumatic pains of the limbs. I believe from many cases which have fallen under my observation, that it will generally be found, in such instances, that the rheumatic pains had been combined with, and in a greater or less degree dependent on, disorder of the digestive organs." The pain of the limbs arising from this cause, often assume the form of idiopathic rheumatism, and become very obstinate, if the cause which supports them be overlooked; which is the more likely to happen, as cold is very often the immediate exciting cause. Dr. Philip has seen severe pains of the limbs, which had long resisted the means usually successful in rheumatic cases, wholly removed by combining with these means the treatment adapted to the second stage of indigestion; and it is well known to surgeons, that the swelling of the knee-joint which sometimes accompanies the rheumatic constitution, is only cured by the same indication.

On turning our attention to the other viscera, we see the spasmodic contractions of the bowels, and their occasional disturbance of function, developed in the early periods of indigestion, now terminating in inflammation, stricture, adhesions, piles, &c. The sigmoid flexure of the colon appears to be a part very liable to be affected with inflammation, probably from the contents lodging there longer than in other parts of the large intestines. It is not uncommon in protracted cases, to find a considerable degree of tenderness in the seat of this part, which is sometimes at length affected with ulceration. It is also common to find tenderness on pressure in the seat of the cæcum.

The liver, too, assumes an inflammatory appearance. We often find, when the patient takes cold, or is exposed to other causes of inflammation, or the dyspepsia is aggravated, the greater part of the right hypochondrium becomes full and tender on pressure, with a sense of oppression and an increased hardness of pulse, often accompanied with some degree of dyspnoea, and a dry teasing cough. He sometimes complains of pain in the right, not unfrequently in the left, hypochondrium, or in the pit of the stomach, or in the right or left shoulder; and experiences

experiences some uneasiness in lying on either side, particularly on the left, the common derangement of the biliary secretion being rendered more marked with these symptoms. The hepatic inflammation thus induced is seldom, however, of that active kind which requires general blood-letting; a fortunate circumstance, as patients of this description rarely bear loss of blood well. These attacks generally partake of the chronic nature of the habitual disease, and for the most part yields to local blood-letting and blisters, with the aid of a mild diet and saline and aperient medicines.

The pain is often felt in the left side, while the tenderness on pressure is wholly confined to the right; but, after the affection of the right side is relieved by evacuations from the tender part, it is not uncommon for the left side to become both full and tender, the inflammatory affection appearing to attack the spleen as soon as the liver is relieved from it; and it will sometimes, on the fulness and tenderness of the left side being relieved by the same means, return to the liver. This alternation often happens more than once before the disease subsides. Sometimes, though much more rarely, the fulness and tenderness appear in the left side alone. The pain is then more confined to the seat of the tenderness.

Whenever the liver becomes thus implicated in the inflamed state of the stomach, it leads to a train of symptoms arising out of hepatic derangement, which demand serious attention. It is not the least of these, that the re-acting disease aggravates the gastric disturbance, a circumstance which very often perplexes us in the diagnosis. But we must postpone further researches till the subject of diseased liver comes before us.

The connexion of *urinary gravel* with dyspepsia is worthy of particular notice. We are indebted to Dr. Philip for an ingenious speculation on this subject. He thinks that it is not by sympathy alone that indigestion excites urinary gravel. He shows that in most cases of dyspepsia there is a considerable production of acid in the first passages; and this acid, as appears from his experiments, enters the mass of blood, and is thrown out of the system by the skin and kidneys. As all other acids occasion a precipitation of lithic acid from the urine when the action of the skin is impaired, the one we are speaking of often passes in such quantity by the kidneys as to cause a deposition of lithic acid before the urine leaves these organs, which there (probably in consequence of being agglutinated by a secretion which its stimulation excites on the internal surface of the kidney) frequently concretes into small masses occasioning fits of gravel.

A precipitation of lithic acid is often observed in the urine of dyspeptic patients, after it has stood for some time; and that the gravel which afflicts them is only a greater degree of this symptom, appears from the observations of the best writers on calculous diseases, who consider the calculi formed in the kidney to be almost always concretions of lithic acid.

Dr. Philip seems to consider, that, in disputing that the kidneys are affected by sympathy with the stomach, he is borne out by the fact, that while, as we have seen, the other intestinal organs are peculiarly liable to assume the inflammatory state of the second stage of indigestion, the kidneys seldom show any tendency of this kind. This assertion seems, however, by no means consonant with experience; but Dr. Philip obviates the difficulty by saying, that, "it is not uncommon, in indigestion, for the acid state of the urine, arising from the superabundance of acid and its other saline contents, occasioned by the greater generation of acid in the alimentary canal, and the inactivity of the skin, so to irritate the urinary passages as to occasion frequent micturition, and a sense of burning, and other painful sensations in these passages, even when no deposition of lithic acid takes place in them." Without attempting to invalidate this theory, or even to prove direct sympathy between the stomach and kidneys, we cannot help thinking, that an indirect sym-

pathy between the stomach and kidneys, through the medium of the skin, would account for the circumstance we are considering in a manner more consonant with general principles, and equally capable of demonstration.

In prosecuting further the groups of symptoms which arise from dyspepsia, *cachectic disorders* will hold a prominent rank. The marasmus both of infants and adults is often directly traceable to the undigested state of the *pabula vitæ*, even where no affection of the absorbents of the mesentery exists; so that tabes, atrophica, &c. will (as we shall endeavour to show when these are on the tapis) often gain relief from the treatment of dyspepsia. There is, however, one species of cachectic disorder which we must notice here for want of a more fit place in our nomenclature: we allude to a state which has been described by Dr. Hall as a variety of (what he calls) the *Mimosis acuta*; and which appears an analogous distemper to that noticed by many authors under the terms *purpura*, *scorbutus*, &c. This affection is indicated by all those symptoms which we should naturally infer from a morbid condition of the circulating fluids; for instance, by deficient action of the muscular fibres, manifested in its larger structures; by languor, indolence, and debility; and, in its smaller ones, by various topical congestions, and by hæmorrhage; and these latter are peculiarly remarkable on the skin and the nervous expansions. The skin, being pressed or otherwise injured, betrays extraordinary marks of want of tone, or of the resistance to, and recovery from, unnatural agents, which healthy structures so remarkably display; and it is sometimes affected with a continued though variable state of fallowness, of yellowness, or icterode hue; of darkness, or of a wan, squalid, or fordid, paleness of complexion; or a ring of darkness surrounding the eyes, and extending a little perhaps towards the temples and cheeks, and sometimes encircling the mouth; and the gums, throat, &c. are peculiarly liable to fall into ulcerations, hæmorrhages, &c. Pains in the bones are often felt. We select a case from Dr. Hall, which, though it does not exemplify this complaint in its worst form, yet is worthy of permanent record, because it serves to trace the disease very conclusively to a dyspeptic origin.

"E. M. aged 35, a framework-knitter, tall, stout, and healthy, was employed, in 1815, in the most active and laborious manner, in hay-making; he was exposed to great heat, underwent much fatigue, perspired profusely, and drank copiously of beer and ale. He became affected with weakness, listlessness, loss of flesh, nocturnal perspiration, head-ache and vertigo, loss of appetite, and icterus, with pale-coloured stools and deep-coloured urine. He recovered from these complaints; but in the year 1816 had the misfortune to break his leg. In consequence of this accident and the subsequent confinement, he became and remained indisposed; he gradually lost flesh, and from 14 stone, weighed between 12 and 13 only; and experienced, on taking cold, a loss of appetite and strength, with an inability to work, not known before. In November 1817, he underwent much bodily exertion, and remained exposed to the cold and damp. He took cold, and became affected with hoarseness, sore throat, and cough, with œdema of the ankles. These symptoms ceased, except the œdema, which receded however gradually; but he was still affected with the following complaints, which are copied from his own account of them: Loss of flesh, and of strength; a feeling of internal weakness; feverishness, a parched and dry state of the throat, and sometimes of the tongue; sensibility to cold, chilliness, tendency to perspiration, especially in the night; head-ache; sleepiness; dulness of spirits; nervousness; fluttering at the heart and about the stomach; cough; dyspnoea; a clammy tongue and mouth, and fetid breath; loss of appetite, sense of load at the stomach, occasional rejection of food, constipation, and pain in the chondriac regions. This patient became much better from the use of gentle purgatives of calomel, rhubarb, and

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Epſom ſalt. But in Auguſt 1818, he became affected with ſevere and continued diarrhœa, with a loſs of fleſh from 1 ſt. 2 lb. to 10 ſt. 6 lb. and loſs of ſtrength, and aching and wearineſs, and pain in the ſhoulders, ſides, and legs. He again recovered under ſimilar remedies; but, in November 1818, was taken with feveriſhneſs, attended with a parched tongue and mouth, ſome delirium in the night, and further loſs of fleſh and of ſtrength; and, at the ſame time, there occurred an extenſive ulceration of the back part of the pharynx, and a conſiderable diſcharge of bloody mucus from the noſtrils. He was reduced from 10 ſt. 9 lb. to 9 ſt. 2 lb. This ſtate continued, and icterus again occurred, with the uſual appearance of the tunica albuginea, ſkin, urine, and ſtools. Soon after this time I made the following liſt of appearances and affections in this poor ſufferer's complaint: 1. Swarthineſs of complexion; 2. feveriſhneſs, with parched throat and mouth, and heat of the forehead and legs; 3. tendency to perſpiration; 4. quivering of the chin and lips in ſpeaking, ſimilar to that obſerved before ſhedding tears; 5. tremor; 6. fluttering; 7. loſs of fleſh; 8. diſcharge of bloody mucus from the noſtrils, with ulceration; 9. ulceration of the throat; 10. icterus; 11. diſcharge of much blood and mucus from the bowels, preceded and attended by pain of the abdomen, with tenefimus and forcing; 12. the ſtools, otherwiſe, light coloured; 13. ſome anafarca; 14. boils; 15. painful ulcers on the legs."

Connected with the ſame morbid ſtate of the body generally, we have to obſerve thoſe anomalous and diſtreſſing caſes which we denominate ſiphilodes. But more of this under that term.

Another cachectic diſeaſe muſt be here treated of. We have before ſhown, that nervous excitement may produce the phenomena of *hysteria*, whether it be derived from the ſtomach or uterus; and, in conſidering *chlorosis*, there ſeems every reaſon for ſuppoſing that a ſimilar circumſtance occurs; viz. that, while *chlorosis* is a diſeaſe generally cauſed by the want of due catamenial diſcharges, the want of proper diſteſtion, whether from deficient ſenſation or morbid abſorption, may ſimulate, if not literally produce, the ſame complaint. A fact reſting on good authority ſpares us the trouble of reaſoning in proof of this aſſertion: it is, that the *male ſex* are by no means exempt from attacks of this kind, eſpecially the young and ſedentary. *Chlorosis* is evidently a bad term for this affection; nor do we like Dr. Hall's term, *Mimosis decolor*, becauſe the expreſſion of *mimicking diſeaſe* is not quite applicable to it. We however borrow from that author the deſcription of it, and therefore admit for the preſent his nomen.

The *incipient ſtage* of the *Mimosis decolor* is denoted by paleneſs of the complexion, an exanguious ſtate of the prolabia, and a ſlight appearance of tumidity of the countenance, and puffineſs of the eye-lids, eſpecially the upper one. There is ſometimes a tinge of green, yellow, or lead-colour, and frequently darkneſs of the eye-lids. There is great paleneſs of the general ſurface, hands, fingers, and nails; an opaque, white, tumid, and flabby, ſtate of the ſkin; a tendency to œdema of the calves and ankles; and a certain loſs of fleſh. The tongue is white, and loaded; it is ſwollen, marked by preſſure againſt the teeth, or variously formed into creases or folds; its papillæ are very numerous, and much enlarged. The gums and the inſide of the cheeks become tumid; and the latter, as well as the former, are ſometimes impreſſed by the teeth. The breath is tainted. The patient is generally languid, liſtleſs, indiſpoſed for exertion, eaſily overcome by exerciſe, nervous and low-ſpirited, drowy, dizzy, fainty, or breathleſs. There is generally ſevere head-ache or vertigo; the memory and power of attention are apt to be impaired; and there is ſometimes heavineſs for ſleep. There is alſo, in different inſtances, pain of one or both ſides about the false ribs, or in the hypochondriac or chondiliac regions. Sometimes there is cough, diffi-

culty in breathing, palpitation or irregular action of the heart, or imperfect ſyncope, and almoſt univerſally a ſenſe of fluttering about the præcordia. The appetite is generally impaired. There is frequently a morbid appetite for acids, or for magnesia. The bowels are conſtipated, a ſtate which ſometimes leads to diarrhœa; the fæces are dark-coloured, foetid, and ſcanty. The urine is frequently loaded. The catamenia become irregular, are preceded and attended by much pain of the back and region of the uterus, and ſometimes, but not always, become ſlowly defective in quantity, and pale in colour.

In the *confirmed ſtage* of this affection, the ſtate of the complexion and general ſurface is ſtill more marked. The countenance is more pallid; the prolabia and the gums exanguious; or the prolabia, eſpecially the upper one, have a ſlight lilac hue; and the integuments are tumid. The ſkin is ſmooth, but becomes preternaturally dry; the integuments are puffy, opaque, and pale, or yellowiſh; and there is a tendency to œdema of the feet. The tongue becomes clean and ſmooth; but it is pale, with a ſlight but peculiar appearance of transparency, and of a pale lilac hue; and it remains a little ſwollen and indented. The patient is now affected with languor, laſſitude, and even ſerious weakneſs, being at once reluctant and unable to undergo fatigue. There are often attacks of ſevere pain of the head, or of equally ſevere pain of the ſide; and repeated bleeding, leeches, and bliſters, are uſually employed, affording a temporary reſpite from theſe complaints. There are alſo, ſometimes, fits of dyſpnoea, of palpitation of the heart, or of fainting, with beating of the carotids. The pulſe is rather frequent, often about 100, and eaſily accelerated and rendered irregular by mental emotion. The appetite is ſometimes impaired, occaſionally greater than natural, and very frequently depraved, inducing a longing or conſtant deſire for ſome indigeſtible ſubſtance, as acids or pickles, magnesia, chalk, cinders, ſand, coffee-grounds, tea-leaves, flour, grits, wheat, &c. which the patient likes to have conſtantly in her mouth, or to which recourſe is had when ſhe ſuffers from agitation of mind, (like the dirt-eating negroes, p. 122, 3.) The bowels are ſlow and conſtipated, a ſtate which ſometimes alternates with diarrhœa, and induces melæna; the ſtools are dark, foetid, and ſcanty. The catamenia are attended with pain, and become paler, and leſs in quantity, often ceaſe, and often yield to a ſtate of leucorrhœa which is more or leſs conſtant.

In the *inveterate ſtage*, all the ſymptoms aſſume an aggravated character. There is a very ſlow, but progressive, loſs of fleſh. The languor becomes a ſtate of permanent debility. The œdema increaſes, and takes on the aggravated form of anafarca. The pulſe becomes frequent. There are leſs of the appearances of mere *diſorder*, and more of the character of *diſeaſe*; i. e. thoſe local affections, which exiſted in a leſs continued manner before, now became either permanent, or are induced by the ſlighteſt cauſes; and the patient can ſcarcely bear the moſt ordinary occurrences of domeſtic life, and perhaps remains always in bed. Sometimes there is an almoſt permanent pain of the head, perhaps with intolerance of light or of noiſe; ſometimes pain of the cheſt, with tenderneſs, difficulty in breathing, and cough. Frequently there are pain and tenderneſs of the abdomen, with ſickneſs and conſtipation, or with diarrhœa. Different ſymptoms reign in different inſtances; as ſome hyſteric or ſpaſmodic affection; a ſtate of locked jaw, cloſed hand, contracted foot, or twiſted limbs; palpitation of the heart; hurried or ſuſpended reſpiration; long fits of coughing, hiccough, retention of urine. It is worthy of notice, that this chlorotic ſtate and the cachectic diſeaſes noticed before are often alternate, or run into one another.

An important connexion ſeems to exiſt between the pathology of the ſtomach and the mucous membrane of the lungs. In the firſt ſtage of indigeſtion, an irregular and ſpaſmodic cough is often produced by nervous irrita-

tion, as we have before seen; and, when the inflammatory state has come on, an inflammation of the mucous membrane of the bronchiæ is no uncommon occurrence. In cases where predisposition to disease exists, idiopathic disease ensues; but more commonly a dependance on the original disorder is still remarked in structures secondarily affected. Affections of more severity, and which perhaps have their seat more immediately in the parenchyma of the lungs, are those which dyspepsia gives rise to when implicated with disordered liver. The latter viscus indeed holds a very important relation with the pulmonary organs, whether in health or in disease. When we come to treat of inflammation of the mucous membrane of the bronchiæ, we shall speak more fully of the sympathetic action of the mucous expansion. Suffice it to say at present, that communicated disease is frequently observable between the stomach and lungs. Dr. Hastings, in his Treatise on Bronchitis, has very accurately described the disease in question. It is distinguished by the usual signs of bronchitis (which see); such as, tightness of the chest, cough, copious expectoration, &c. and the further presence of various dyspeptic symptoms, as well as indirectly by the effect of remedies used in indigestion. But often more severe disturbances arise; and the violence of the symptoms approaches closely to the characteristics of structural alteration. Indeed every one sees cases apparently of phthisis which yield to the treatment for indigestion. For our own part, we wish to confine the word phthisis to the apostematous or tubercular kinds. Now, with regard to the former, we conceive no one will assert that it is curable by dyspeptic treatment; and, with respect to the latter, scarcely a bolder prognosis will be given. It must be conceded, however, that the latter form of diseases may be thus cured. Mr. Abernethy has demonstrated to a mathematical certainty, that the reparative processes are beneficially influenced in the highest degree by the treatment in question; and we have only to extend this established proposition from the visible external parts to the internal surfaces; yet, in so doing, we must consider, that both the perpetual motion and the aerial stimulation of the pulmonary organs, render reparation of structure a most difficult task in them. Moreover it is acknowledged that we have no pathognomonic sign of phthisis; that not even the vomiting of pus can render the existence of apostema unequivocal, since pus may be secreted from the mucous membrane in certain states of inflammation; and therefore we shall conclude, that stomachic medicines can be used as direct agents only where neither apostema nor tubercle exists. We must be careful, however, where we fix the bounds between sympathetic and real disease. In the 43d, 44th, and 45th, sections of Morgagni's 21st Epistle, we find the disease which he calls the *pleuritis verminosa* treated of at some length. The author mentions one case, in which all the symptoms of pleurisy were well marked, that terminated favourably by bloody vomiting which brought up a worm; and he refers to a paper of Pedratto on the *pleuritis verminosa*, where the relief obtained by the expulsion of worms from the stomach and intestines is unequivocally proved. In this paper it appears, that all who vomited the worms, or passed them by the bowels, recovered; while those who retained them died. All the common means of treatment in inflammation of the lungs failed; medicines which destroyed the worms were alone successful. While their expulsion immediately removed the disease, it is impossible for us to believe that organic alteration of the lungs had taken place; yet in those in whom the disease had been allowed to take its course, the same appearances were found in the thoracic viscera as in those who die of other forms of idiopathic disease. Analogous cases are not unfrequently observed at the present day.

In regarding the connexion above mentioned, we often find that the diseased action of the digestive apparatus is caused by the pulmonic irritation, and that the action so induced keeps up and increases the latter irritation.

These cases are however rare, when compared with those in which dyspepsia is first manifested; and they are seldom found till disease has been of long continuance. It is generally preceded by symptoms of indigestion, and particularly by those which indicate some disorder in the secretion of bile. Contrary to what is usual in other species of the disease, the spirits from the beginning are generally more or less depressed, and the countenance is fallow.

While the first stage of indigestion remains, and nervous irritation is the only cause of the cough, the latter is usually dry, or the patient brings up a little mucus after a severe and often long-continued fit of coughing, which seems to be rather the effect of the irritation of coughing than any thing which had previously existed in the lungs; for the cough in this species of consumption, particularly in its early stages, frequently comes in violent fits, in the intervals of which the patient is often but little troubled with it. These fits are particularly apt to occur after he has eaten, especially if he has eaten a great deal, or any thing by which the digestion is disturbed: and on lying down.

As the second stage arises, bronchitis is the most usual form of disease. The cough becomes more frequent, returns less decidedly by fits, and is attended with a more copious expectoration.

An expectoration at first limpid or glairy comes on. As the disease advances, this increases, though sometimes for a considerable time without purulent characters. By degrees, however, we see small portions of an opaque pus-like substance mixed with the expectorated mucus, and the proportion of it increases as the disease advances. In some cases the quantity expectorated is astonishing, often much greater, in proportion to the severity of the other symptoms, than in idiopathic bronchitis.

Blood is not unfrequently mixed with the colourless matter, and sometimes pure blood is coughed up in the early stage of the disease. After the pus-like expectoration commences, if blood has not previously appeared, it is much less apt to appear than in other forms of the disease. If it appear even in small quantity after this stage commences, Dr. Philip says that the case generally proves fatal. The above-mentioned author is likewise of opinion that, while the blood is mixed only with a transparent fluid, there may be good hopes of recovery; or, if there be no admixture of blood, there may be also hopes of recovery, if the disease has not lasted long. But, when the expectorated matter assumes a sanious appearance, it seems to indicate much danger. In these cases there is of course the dull pain and tenderness in the epigastric region of the second stage of dyspepsia; and in progress of time, an irregular hectic is formed, differing, however, from the true tubercular hectic; for, though there is usually some evening exacerbation, during which the face is generally flushed, and though the hands and face are occasionally bedewed with perspiration in the night; these go off before morning. The emaciation too, though it becomes very perceptible, does not proceed so rapidly as in tubercular phthisis.

The latter circumstance seems to display itself in the same proportion as the fever. Anorexia, flatulency, tenderness over the liver, pain in the shoulder, or other hepatic or dyspeptic symptoms, are invariably present; and, though they vary at different times, the patient is never free from some of them. The connexion between them and the pulmonary symptoms is rendered evident by the latter increasing with the former; so that, when the epigastric region is very full and tender, and the flatulence and acidity more troublesome than usual, the cough and dyspnoea are so also; and, on the former symptoms subsiding, the latter likewise abate. Even the rising of wind from the stomach, often, for the time, removes the tendency to cough.

If the progress of the disorder be not checked, the symptoms approach still nearer to those of tubercular phthisis,

phthisis, or in fact that disease is formed. Hectic fever becomes completely formed, and the patient is waisted with profuse perspirations, anasarca and other dropsical symptoms often supervening.

As the pulmonic disease becomes more clearly formed, the disease of the alimentary canal diminishes, as we have before shown it is apt to do when idiopathic disease (which operates as a derivative) is set up; and this occurrence leads of course to a fearful prognosis.

The intimate connexion between gastric and cutaneous diseases has been clearly pointed out by Mr. Abernethy, and the best practical physicians of the day. Indeed the natural sympathy which is perceived between the stomach and the skin would lead us to expect such a connexion. It is not strikingly evinced, however, in moderate temperatures, and while no extraordinary agent is in action; but, when in a high range of atmospherical heat, when the vessels of the skin are excited, and the process of perspiration is increased, we clearly observe this consent between the skin and stomach, as evinced by want of appetite; an effect which is greatly increased, if to the external stimulus of high temperature we add fatiguing exercise, whereby the perspiration is morbidly excited, and the indirect debility of the sub-cutaneous vessels and stomach (by sympathy) induced. Hence, after pedestrian exercise in the forenoon during the heat of summer, and after the perspiratory vessels have become relaxed, we find a sense of fainting at the stomach, and anorexia; while, on the contrary, as the weather becomes cool, and the vessels of the skin contracted thereby, we perceive the sympathy in question exerted in the opposite mode; for a stimulus is quickly communicated to the stomach and the appetite is keen: and again, when the degree of cold is so great as to induce permanent debility of the vessels of the surface, and this is not immediately counteracted by exercise or clothing, the stomach, as well as other organs, inevitably sympathises, and the important process of digestion is interrupted.

As further instances of this sympathy, we may adduce the effects exhibited on the skin by a glass of water or wine taken into the stomach; the breaking-out of sweat which ensues to some as soon as acids are applied to the oesophagus; and, when we add to these facts the numerous examples which daily occur of surfeits, and the derangements in the colour, sensation, and function, of the surface immediately consequent on a debauch, we shall have no doubt in deciding, that, in nine cases out of ten, cutaneous foulness and gastric irritation are related to each other as cause and effect.

Among the numerous painful sensations and impeded functions which we have had occasion to enumerate as consequences of dyspepsia, we believe there is not one which, primarily occurring, will not produce, as well as follow, that disease. These derangements in the circulating media, all nervous irritations, all agents sufficiently powerful to control the actions of the living powers, impediment in any part of the respiratory or assimilating apparatus or in the functions of the mind, all fortuitous lesions, will, unless counter-irritations or predispositions to disease exist in other parts, produce indigestion. This established, it serves to show the imperious necessity that there is to study the causes of dyspepsia, and to direct our therapeutical maxims accordingly; and, in so doing, what a large fund of observation this enquiry admits of, when we turn back to consider the formidable though incomplete list which we have already detailed.

In considering, therefore, the treatment of dyspepsia, we shall revert to what we said, at p. 128, of its first causes. The contemplation of those which act by influencing the nervous system of the stomach, is of course the most extensive. It is by this medium that local injuries and topical inflammations, intense study, &c. produce gastric disorder; and, when the complaint in question is thus traced as a consequence, the treatment is obvious. There are some nervous impressions, however, which, though

not themselves continued, induce a train of morbid actions which soon exhibit the form of dyspepsia.

Of these impressions, the most frequent is the state of the atmosphere. The influence of salubrious air in promoting healthy digestion cannot indeed escape the most superficial observer. This fluid seems to operate beneficially in various ways. Thus it may promote digestion by the excitement to muscular action which its stimulus produces, by the elevating and pleasurable mental emotions its purity excites, or its healthful impression on the mucous membrane of the lungs may be transmitted more directly to the stomach. Hence it follows, that, on the other hand, the want of due materials for respiration must be severely felt in the digestive function. The atmosphere acts on the skin only by its temperature; but the frequent variations in this respect which our own country is subject to, has been long considered a fruitful source of bodily ailments. It does not seem that either the cold or heat of our own climate is particularly injurious, since the compensating powers of the constitution soon render us equal to either extreme; but that it is the suddenness of the change which is so obnoxious to our health; for, while heat augments the cutaneous capillaries, both in size and in frequency of action, (an effect which extends to some extent along the arterious trunks,) its absence induces a diminution of their parietes, and a more permanent and less frequent contraction; and, of course, a sudden change from one to the other of their states tends to disorder the contractibility of the atonic vessels, by sympathy of those of the lungs and alimentary canal, and by another *modus operandi* of the general circulating forces.

From these premises the management of the dyspeptic patient, in regard to air, follows in the most obvious manner. The vicissitudes of the climate he cannot of course control; but he may avoid the more frequent and severer changes of temperature to which his own imprudence exposes him. We of course allude to the fashionable modes of dressing, and the habit of being out in the night-air, &c. These errors, however, have been severely inveighed against by a multitude of writers, and, as might have been expected, with little good to the community, few members of which have the resolution or the inclination to conquer habitual indulgences. It remains our duty, therefore, to point out the best preventatives of danger during the exposure of invalids to the influence of nocturnal temperature. These methods we have extracted principally from the writings of Dr. James Johnson.

After adverting to the deleterious combination of cold and moisture found in the night-air, this gentleman remarks, that there are five circumstances to be attended to when we are subjected to its influence; viz. 1. The condition of the body before going out of doors. 2. The defence of the body's surface while exposed. 3. The defence of the lungs. 4. The exercise on the way. 5. The conduct to be observed on getting home.

1. The condition of the body ought to be as warm as possible, short of perspiration. Many lives are annually lost by the ill-judged caution of lingering about the halls and doors of the heated apartments till the body is cool, before venturing into the air. In this state it is highly susceptible of the baneful influence of the night. It would be better to issue forth, even with some perspiration on the surface, than wait till the system is chilled.

2. Upon the second point we need not enlarge. The frequent sight of thick coats, cloaks, &c. clearly evince that our countrymen do not offend much against this regulation.

3. The defence of the lungs cannot be too strongly enforced. They should be guarded from the direct influence of the night-air by such mufflings about the face as may detain a portion of the air expired from the lungs each time, and thereby communicate a degree of warmth to

to each inhalation of atmospheric air. A large net, for example, folded loosely round the face, will receive a portion of caloric, or heat, from the breath, at each expiration, which portion will be communicated to the current of air rushing into the lungs at each inspiration; and thus the frigidity of the nocturnal atmosphere will be in some degree obviated.

4. As we proceed into the night-air while the body is warm, so we should, by a brisk pace, endeavour to keep up that degree of animal heat with which we set out, and that determination to the surface which is so effectual in preventing affections of any internal organ.

5. As the sudden transition from a heated apartment to a frigid atmosphere must, in some degree, produce a determination to the centre, and more or less check the perspiratory process, some warm and moderately-stimulating liquid may be taken before going to bed, in order that the functions of the skin and the balance of the circulation may be restored; unless, as is often the case in nervous subjects, spirituous potations cause restlessness and want of sleep.

It is of consequence, moreover, that the dyspeptic patient should avoid the thick fogs and damp air which surround all large towns or manufactories; and that he should therefore remove from such situations into the open country. Or, in case his residence in foreign regions, whether northern or tropical, is the probable cause of his indisposition, a return home is of course the obvious remedy.

As a further method of obviating atmospherical impressions, the nature of our clothing requires some attention. Dyspeptic patients should not only endeavour to wear a lighter and warmer clothing than is usual, but adopt a more uniform system of attire throughout the year; in which case they will, in a great degree, obviate the keen susceptibility to aerial impressions for which they are so remarkable. They should avoid likewise the fashionable habits which exist in regard to frequent changes of dress. The fair sex in particular, and the less robust of our own, are observed to wear a warm dress in the fore part of the day, a period when the sun is most powerful, and when exercise is more used; while the evening or dinner dress consists of garments of the thinnest texture, when the frame is more exhausted, and the air damp and cold. No words are required to point out the injury such a practice must inflict on the patients of indigestion.

We have before adverted to the effect of studious habits on the process of digestion. Perhaps a few words on the management of the *mind* will not be misplaced. We do not wish, far less hope, to check the patient and abstracted exertions of genius; but, if it can be shown to the philosopher that knowledge will more kindly open her stores to him who has not corporeal ailment to destroy the balmy refreshment of sleep, and whose enthusiasm is not liable to be dulled by baneful hypochondria, he will perhaps be induced to spend some of his existence, we trust not unhappily, in the lighter dissipation of conversation, and in the cheering influence of corporeal movements. It will not be lost time. Health has always been considered the result of a general and pervading harmony; that, while one part or structure acts for the support of life, another rests. Even the heart, powerful as it is, rests and acts alternately. All other organs obey the same law; they have longer intervals of exertion and relaxation, it is true; but still they have them. Shall the brain only receive none? Without enlisting ourselves on the side of the philosopher who said the mind always thinks, we may safely assert, that, except during sleep, the brain is perpetually occupied in receiving impressions, or in performing its own internal operations. If sleep, then, be the only time it is exempt from this toil, how impaired must the functions of that cerebral structure be which experiences but imperfectly and for short periods the influence of "tired Nature's

sweet restorer!" But it is not only by tending to destroy sleep that too long application weakens the faculty of thought; the time borrowed from the due exertion of the muscular system is certainly ill applied. That absorption and circulation are facilitated by muscular motion will be admitted on all hands; and whence does the brain derive its sustenance, but from the circulating powers? And further, who has not felt how at times his mental energy in a few hours of application rapidly overtakes, nay surprisingly outdoes, the laborious study of days, when he toils "invita Minerva!" The student, therefore, should endeavour, above all others, to exercise in some degree all his powers, his functions, and his faculties. His employments naturally tend to make him abstinent; and we are well assured, that, if he does not disdain the useful lessons of experience in regard to his bodily infirmities, he will find no reason to coincide in the melancholy but frequent assertion, that intellectual grandeur and corporeal energies are incompatible; nor will Ovid's description (pallor in ore fedet macies in corpore toto) be longer applicable to him.

To apply the subject of the management of the mind more closely to indigestion, our present subject. The proper exertion of the mind is perhaps too little attended to by dyspeptics; yet it is of much importance; for mental anxiety is no unfrequent source of the complaint in question, and is always an aggravation of it. Fortunately many of the exercises which are good for the body act favourably on the mind also; as for instance, the less-laborious employments of horticulture and husbandry; the driving of a gig, riding on horseback, &c. Occasional occupations in certain games, in which some degree of corporeal exercise is combined with the employment of the mental faculties, as billiards and the like, are serviceable. We should principally select such amusements as at the same time do not engage the feelings too deeply. The glow which poetry infuses over the soul may be safely indulged in by the man of business, or by those who follow professions in which the reasoning faculties alone are called into play. But such indulgence is perhaps unfavourable to the poet himself. We may admit for the occasion the fable of old, (see the article MUSIC, vol. xvi.) and try the delicious influence of sweet sounds over the morbid feelings of the patients in question. Some, on the other hand, require the avocations of business, which should be divested however of the anxiety usually attendant. The variety of men's minds requires however the contemplation of objects of different kinds, though the grand rule is, in respect to the mind as in the body, to exercise without fatiguing it. But we may be spared entering into any thing more than hints, as the subject requires particular application rather than general rules.

The second cause of derangement of the gastric function, viz. by distention of the muscular fibre, is next to be considered. We purposely omit at present the distention produced by chemical change arising from a want of nervous power or of secretion. It remains, therefore, to consider distention only as far as regards the too-great quantity, or the gaseous or swelling quality, of the aliment received.

The most common cause of distention of the stomach is eating too fast; for, the appetite only subsiding in proportion as the food combines with and neutralizes the gastric fluid, this practice inevitably tends to induce persons to eat more than is requisite or natural; and, as the gastric fluid is but slowly secreted, the major part of the food remains in a place favourable, on account of its temperature, to chemical change without being submitted to the counteracting influence of the gastric fluid; whereas, when we eat slowly, so that a proper time is given for the combination to take place, the appetite abates before the stomach is overcharged; for, while digestion goes on, and the gastric fluid is only supplied in proportion as fresh food comes in contact with the coats of the stomach, it combines with the food as it is formed, and never excites the

the appetite. The truth of this is evident to every one who has observed that, if his meal is interrupted for ten or fifteen minutes, although he has not eaten half his usual quantity, he finds that he is satisfied. The gastric fluid which had accumulated has had time to combine with, and be neutralized by, the food he had taken. On the same account a few mouthfuls taken a little before dinner will often wholly destroy the appetite, especially in delicate people, in whom the gastric fluid is secreted in small quantity, or of a less active quality. Moreover, when we eat too fast, the food is not only received into the stomach in too great quantity, but is swallowed without being duly masticated and mixed with the saliva, and therefore without properly undergoing what may be considered the first process of digestion. It is thus presented to the stomach in a state in which the gastric fluid pervades it, and consequently acts upon it, with more difficulty. In this way eating too fast is injurious, even when the patient eats but little. For these reasons, "to eat moderately and slowly," is often found of greater consequence than any other rule of diet. The dyspeptic, in eating, should carefully attend to the first feeling of satiety. There is a moment when the relish given by the appetite ceases; a single mouthful, taken after this, oppresses a weak stomach. If he eats slowly, and attends carefully to this feeling, he will never overload the stomach.

Another frequent cause of over-distention of the stomach is high-seasoning and great variety of food, or such as particularly pleases the palate, by which we are induced to eat after the appetite is satisfied; or, by the stimulus of the high-seasoning, a greater supply of gastric fluid than the food calls for is excited, and thus the appetite prolonged. This seems in particular to be an effect of wine drunk during dinner; and this practice, although it occasions less immediate inconvenience than eating too fast, often, if carried very far, by the preternatural excitement of the stomach, at length impairs its vigour. It is not uncommon, in the dissection of subjects who have greatly indulged in the pleasures of the table, to find the stomach enlarged, and its fibres sensibly relaxed.

The degree of distention which the stomach undergoes also depends much on the kind of aliment. All food appears to swell more or less after it is received into the stomach; some kinds more than others, and of course that which is most difficult of digestion, *cet. par.* swells most; both because it is digested and removed from the stomach most slowly, and because that which most resists the action of the gastric fluid is most apt to run into fermentation.

It would take up too much time to mention all the kinds of food which are prone, by their gaseous constituents, to produce gastric distention. Generally speaking, vegetables have this effect in a much greater degree than animal food, and in a crude state especially. Bread often produces it; and it is probably on the same account that malt-liquors, taken during meals, exert a pernicious influence over digestion. Distention of the stomach is also produced by too much drink, or, as with respect to food, by swallowing it with too great rapidity.

Now, with regard to the third origin of dyspepsia, disordered secretion, it arises in most cases out of the two former states; and, the errors or accidents producing them being removed, the effect generally ceases. When, however, it becomes established, its removal implies a much wider indication. In the first periods of diseased secretion, this fluid is perhaps not much impaired in its digestive properties, though diminished in quantity, and possessed of some additional constituents. Eructations of various kinds, pain, &c. now occur, but with little general disturbance, which, as we said before, a little attention to diet soon sets to rights. In this stage we agree with Dr. Philip in thinking, that a diet composed of a moderate portion of animal food and bread is the best; but of course this rule will be daily excepted against on account of constitutional peculiarities.

Though the consideration of diet is again before us, as-

ter the ample notice we have bestowed on this subject, (p. 102-106.) it would be superfluous to do more than briefly recapitulate the rules to be adopted. These are only to be understood, and will always be best remembered, by a knowledge of the digestive process. The patient of indigestion will therefore in the first place attend to the due mastication of his aliment; to its moderately slow transmission to the stomach; to its degree of moisture, which regards the two points, that it be sufficiently moist to allow the pervasion of the gastric juice without weakening that secretion by dilution, and without producing fermentation by its own excess. He will take especial care, when he considers the nature of the propulsive power of the stomach, that he offers no impediment to that function by taking violent exercise during digestion. He will carefully note and partake of those substances which on their reception into the stomach produce least pain or irritation. He will avoid those, on the contrary, which produce any ill feeling; namely, for the most part the tough, oily, or acescent, particles of food. Nor should various kinds of food be taken at once by the dyspeptic. Few patients will digest well more than one sort of aliment at a meal. Moreover, the popular notion of taking little and often is to be regarded as a popular error: and when it is considered, that the mastication and other processes belong to digestion, that economy in which nothing is vain, and which are in fact indispensably necessary, the dyspeptic should not evade the necessity of such processes by taking aliment reduced to a pulaceous consistence. We dwell on this point, because it is so common to hear of *nourishing food*, an expression which, in its common acceptation, is meant to imply the capability of certain substances to nourish our frame rather by its own nature than by that of the digestive action. Thus a variety of jellies, rich soups, &c. are lavishly bestowed on the emaciated sufferer, and these greasy stimulants fail not to destroy the little remaining function which the stomach may possess. Dr. Philip says very wisely, when speaking on this point, that, "however imposing the plans of concentrating much nutriment in a small compass may at first view appear, we may be well assured, that in such concentration something is taken away from what nature designed for our food, which is useful to us." Thus most dyspeptics find, that potatoes, for example, finely mashed, although without any admixture, are more difficult of digestion than when properly masticated. To mention a more striking fact: it has been shown by the chemists, that a very close analogy, an apparent identity indeed, exists between sugar and the chyle which is derived from vegetables; yet a horse fed on sugar will not live a month.

The relation which exists between all the structures of the body, and the necessity of preserving a proper correspondence of energy between the nervous, the vascular, and the muscular, ones, since they are all connected in the alimentary canal, at once shows the propriety of corporeal exercise in indigestion: for the exercise of the voluntary muscles affords energy, not only to them, but to the involuntary movements, and gives, as is well known, much assistance to the circulatory powers. But the bodily exercise of dyspeptic patients is a matter of nice and difficult discrimination; for it is well known, that, however salutary exercise may be to a certain extent, yet that its excess tends to produce consequences directly opposite. Sleep, appetite, and digestion, which are improved by gentle exercise, are often suspended after violent fatigue or exertion. The weak state of the muscular system in some cases is another strong argument in favour of moderating the degree of locomotion, and of cautioning patients not to run into the common error of fatiguing themselves, under the idea of strengthening their frame by strenuous exertions.

In the first stage of indigestion, and ere much debility arises, walking during the interval of digestion is unquestionably the best exercise. It is, in the first place,

P p very

very agreeable, and it seems moreover the most natural. There is no other accompanied with such a uniform and regular exercise of the muscles and joints; and, from the valvular structure of the veins of the extremities, it is better fitted than any other to promote the circulation, and consequently all the functions of the system.

The effect of riding on horseback upon the abdominal viscera is peculiar and salutary; and the jolting of a brisk trot seems, without inducing fatigue, to give tone to and promote the action of the bowels and liver in an eminent degree. In the more advanced stages of indigestion, this delightful exercise becomes injurious; and little else can be borne, except the walking pace of the horse. It is seldom, however, advisable to ride at all at this period, since at the pace just mentioned the patient is subjected to the baneful effect of diminished temperature. It is better therefore to indulge in the ease of a carriage; and, as this becomes too irksome from its vibratory motion, failing is a gentler mode of exercise. It has the credit of being serviceable in almost all cases of debility, and has been found particularly so in debility of the stomach and bowels. But even this exercise, except in warm weather, is unadvisable on account of the exposure to cold air.

Whenever these passive exercises cannot be borne, the dyspeptic may find much relief from the use of friction, as he likewise might experience from the refreshing practice of shampooing; which, unfortunately however, is unknown in this country.

The reader will find the subject of passive exercise well treated of in Dr. J. Johnson's work on the Atmosphere and Climate of Great Britain, p. 197, & seq. We extract a portion, in which however it will be seen that the learned author differs in some measure from the views we have taken in regard to exercise after meals. He says, "During gestation, for instance on horseback, the stomach, liver, intestines, indeed the whole digestive apparatus, experience a succession of shocks, which develop the tonicity of these organs, and favour the exercise of their functions. If the stomach be empty, gestation awakens the digestive powers, whets the appetite, and induces hunger: if that organ be moderately filled with food, the whole chylipoietic system, enlivened by gestation, executes with greater facility, promptitude, and perfection, the elaboration of nutritive matter; and the whole fabric receives, in consequence, an accession of strength. Hence people afflicted with anorexia, or difficulty of digestion, experience the most marked benefit from passive exercise, especially if used before the hour of repast. When used by them after meals, it must be moderate in degree, and gentle in manner. Thus we every day see invalids, to whom digestion is a painful process, escape the feelings of satiety by a gentle ride on horseback or in a carriage after dinner. In this respect muscular or active exercise differs essentially from gestation. To run, to dance, to play at cricket, immediately after eating, is to assail the stomach with violent succussions which derange the natural order of its movements, and dissipate on the voluntary muscles those vital forces and energies which ought to be concentrated on the organs of nutrition.

"But it is not on the process of digestion alone that gestation exerts a beneficial influence. It enlivens the whole abdominal circulation of blood, but particularly that of the various branches of the vena portarum. It thus affects the hepatic system, facilitating both the secretion of the bile, and its elimination from the ducts of the liver into the duodenum. It increases the peristaltic motion of the intestines; in consequence of which, the chyme is presented with greater regularity and rapidity to the mouths of the lacteals, and the chyle is poured, in a freer current, into the blood-vessel system."

When these measures fail, when exercise does not induce those trains of action which lead to health, and when the abstraction of noxious particles of diet fails in the same purpose; it becomes necessary to have recourse

to medicine. It seldom happens, however, but that dyspepsia alone will yield to the measures above mentioned: when it does not, we should be always suspicious of the extension of the disease. The bowels are, as we have before shown, the parts most disposed to participate in the diseases of the stomach; and therefore our treatment should not unfrequently be directed to them. Independently however of the implication of the bowels in the common affection, the action of certain medicines on these viscera is beneficially exerted on the secretions of the stomach and liver. Purgatives promote those secretions in two ways: by the mechanical stimulus derived from the peristaltic motions of the bowels, and through the medium of that sympathy so remarkably observable in the continued mucous structures. The proper use of aperients is a subject of great importance at all periods, and in all states, of indigestion. In the period under consideration, their object is merely to support a regular action of the bowels, which, as the secretions of the whole canal are inclined to fail, and the stomach and upper bowels do not discharge their contents so readily as they ought to do, should be rather freer than in health. Different aperients suit different constitutions. For the purpose of supporting a regular action of the bowels, we recommend pills composed of ipecacuanha, compound extract of colocynth, and soap, with the addition of a little gamboge when they are not sufficiently active, to be taken occasionally at bed-time. But we abound so much in forms of aperient medicines, that it were wasting time to mention many of them in this place.

It is a common practice to give some form of mercury to patients labouring under indigestion; and, in consequence of the stimulus this mineral exerts on the liver, its use is generally beneficial; but as a simple aperient it should not be resorted to, and that for two reasons: the first, that it exerts a prejudicial influence on the secretion of the gastric juice; and secondly, because it has the effect of often doing more than we require; as for instance, when it salivates (which it will sometimes do in very small quantities), or when it excites structures undiseased, and thus destroys the balance of action to the restoration of which our endeavours are oftenest directed.

The use of aperients alone is not however always sufficient. The disordered secretion of the stomach continuing, it becomes necessary to excite the secreting vessels by artificial stimuli, for the purpose of altering their action on the blood, and causing them to elicit more appropriate fluids; as well as of exciting the muscular fibres and the nervous expansions to carry off their load. Among these, bitters hold the first rank. Those in common use are—gentian, chamomile, bitter orange-peel, wormwood, columba, and bark. We are not of opinion that much difference exists in the merits of these various substances. Many practitioners use one or the other of them exclusively, and perhaps with nearly equal success. It seems that the chamomile, orange-peel, gentian, and wormwood, are less inclined to promote the general circulation; and are therefore preferable when a plethoric state of system is observable. On the other hand, the cascarilla, columba, and the Peruvian bark, exert a more general influence on the system; and are therefore proper when, from the irritation of the nerves of the stomach, the cerebral mass communicates too languid an impression to the circulating system.

It is generally found advisable to combine bitters and aperients. A formula consisting of six drachms of compound infusion of gentian and of the same quantity of infusion of fenna is of this kind: it is generally found to promote all the processes of digestion and abdominal excretion. The combination of salts with the same bitter infusion is likewise a common and excellent formula.

It is often requisite to administer stimuli derived from the mineral kingdom. Of these the mineral acids, the preparations of iron, and the sulphate of zinc, are in common use. Of the mineral acids, the sulphuric is per-
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haps the best in indigestion, and has this advantage over the other sorts, that it operates more distinctly on another part affected in dyspepsia, viz. the skin. It is peculiarly serviceable in those cases, where sweating, which is not unusual, is too easily induced by exercise; for much tendency to sweating indicates relaxation, not vigour of the skin.

There are few cases of indigestion in which iron is not found more or less useful at an early period, if no tendency to the second stage of the disease has shown itself. Its good effects are increased by combining it with bitters and aromatics; and, in idiopathic indigestion, the carbonate has appeared to us its best preparation, provided it can be taken scruple-doses, without producing a feeling of heat and oppression in the stomach. In the opinion of many, the sulphate of zinc given in very small doses, also holds a distinguished place among these medicines. It may be given at later periods than iron, but it requires caution; and, if its good effects do not soon appear, should be laid aside. It is one of those powerful agents, which must always be employed with some degree of suspicion.

The medicines we have spoken of hitherto seem principally to exert their influence on the contractility of the muscular fibre, or the capillary vessels. But, as we have before seen that, however various may be the causes which act on the muscular fibres of the stomach, or on its nerves; yet these powers are so connected, that whatever impairs the one necessarily affects the other; so we shall find that a similar observation applies to the means of relief; that those medicines which tend to restore a healthy nervous power to the stomach, tend likewise to form the food into that substance which is best fitted to excite the muscular fibres of this organ; and that whatever excites the natural action of these fibres, tends to relieve the nerves from uneasy impressions, and, in the most favourable way, to bring into contact with their extremities the food on which they are to operate through the intervention of the secreting vessels.

There are some remedies which act peculiarly on the nervous system of the stomach. These are irritants, or those which increase the production of the nervous power; and anodynes or narcotics, the effect of which is to dull the sensibility. The potent nature of the first class is shown by their exhilarating effects on the system at large. It is thus that distilled spirits and aromatic tinctures produce so much alleviation from the uneasy sensations of dyspepsia. It is well known, however, that the measure of vigour which spirituous potations afford is generally followed by increased debility; and we should therefore be cautious in the exhibition of them. They can be given with safety only under the following circumstances; viz. when patients have so long indulged in their use, that we have to fear the increase of dyspeptic symptoms from the sudden relinquishment of the habitual stimulant, or when we have so far corrected the state of the other viscera and of the system in general, that the stomach seems only to want some additional nervous excitement to call its natural action into full play. Even when exhibited with these intentions, it is best to give spirits only in conjunction with bitters, and in small doses. This rule does not of course apply to violent or spasmodic paroxysms of dyspepsia, in which somewhat active doses of distilled spirit are often admissible. When combined with bitters, the medicines of this class render the former medicaments more permanent in their effect; and indeed, the action of the latter seems often necessary to enable the stomach to bear the former without oppression. The quantity of distilled spirits in such mixtures should always however be small; a twelfth, at most an eighth, of the whole. In the exhibition of aromatics less nicety is required: the properties of all are similar, though some suit the stomach and the taste of individuals better than others. Thus ginger may be used when cardamoms stimulate the system

too much; and cardamoms will relieve flatulence and spasmodic pains, when ginger fails.

Among the drugs which augment nervous sensibility, we have to mention ammonia. The operation of this substance is by no means simple. It accelerates the pulse for some time after reception into the stomach, while it stimulates the contractile fibres of that viscera, and is also a grateful and permanent stimulus to its nerves. It is well calculated to relieve those patients in whom the force of the circulation is below par; provided, however, that no tenderness of the epigastrium, hard pulse, or any sensation of burning in the hands or feet at night, is experienced; for the latter symptoms would undoubtedly be formidably augmented by its administration. Camphor possesses some of the properties of ammonia in a slighter degree. Its property of alleviating sickness renders the mistura camphoræ a good vehicle for other medicines.

We have recommended much caution in the use of irritants: the use of anodyne remedies demands perhaps still more. The only medicine of this class which produces effects worth notice is opium. In violent spasms this medicine may be given somewhat freely; but Dr. Philip says, that very small doses, two or three minims of tincture of opium for example, repeated two or three times a-day, often prove highly serviceable in allaying morbid irritation; their constringent effect is easily counteracted; and sometimes indeed they have very little of this effect. A better mode of exhibiting opium is under the form of the Pulv. ipecac. comp. From two to four grains of this preparation, given every six or eight hours, appears to have a peculiar effect in allaying the irritation attending indigestion, which probably arises from its action on the skin. It appears to be best adapted to those cases in which that combination of languor and restlessness, often so remarkable in this disease, prevails. It is better from time to time to discontinue and renew its use, than to exhibit it for a great length of time without interruption; which, even when the dose is very small, is apt to occasion some confusion or other uneasiness of the head; an effect which goes far to increase eventually all the dyspeptic symptoms.

While these remedies are then in action, we still have to contend with paroxysms of pain and nervous irritation. To these, opium, ether, cardamoms, and the whole host of antispasmodics, are the usual and effectual remedial agents. Among these means of temporary relief, very-warm water holds a higher place perhaps than is generally supposed. To its frequent use there are the same objections as to other powerful stimulants; but occasionally it relieves dyspepsia in a very decisive manner. It deserves mentioning, although it is difficult to explain it, that a considerable degree of heat applied externally to the region of the stomach is as effectual, provided it be continued for a sufficient length of time, in removing cramp, as any application of heat we can make internally. It is also frequently relieved by heat applied to the feet. It is during this stage of dyspepsia that galvanism is often advantageous; but in the use of this stimulant we must be careful to regulate it so that it may not excite inflammatory symptoms.

When the bowels become implicated in the disease of the stomach, a more brisk and continued state of purging is required. To spasmodic affections of those parts the same spirituous remedies that relate to the gastric affection are applicable.

When, from the fullness of the right hypochondrium unattended by deficiency of bilious secretion, we have reason to suppose tardiness of action in the duodenum, those purgatives which excite the peristaltic motions are preferable to all others. Of these, the combination of rhubarb and fenna may be mentioned as one of the best. When, on the other hand, mucous secretions are apparent to excess in the fæces, the saline cathartics should be employed.

ployed. We reserve, however, further remarks on the due regulation of the bowels till we come to the next genus.

The functional derangement of the liver occurring as a consequence of dyspepsia, requires the particular treatment of the former complaints to be conjoined with that of the latter disease. The medicine best calculated to promote the secretion of bile is mercury. The different preparations of this mineral may be used according to the peculiar constitution of the patient. The most common are Abernethy's blue pill, Plummer's pill, and calomel. The first of these, given in doses of four or five grains every second or third night, as recommended by Mr. Abernethy, is particularly serviceable in those cases where the affection of the liver has supervened early, and where, consequently, it is the principal cause which supports and aggravates the dyspepsia. This pill disagrees however with some constitutions. We do not allude to the transient sensation of pain which is felt in some stomachs for the first half-hour after its reception; but the more permanent sensations of the same kind that are sometimes experienced. Calomel is perhaps, after all, the best kind of mercurial for the first stage of indigestion; and is chiefly applicable when irregularity of the secretion of bile is present. It also deserves notice that calomel necessarily occasions brisk purging, on which the benefit derived from it often greatly depends; so that, while, by its peculiar effect on the first passages, it excites a better action of the liver, by its purgative effect it tends further to emulge the gall-ducts, and relieve the distended state of the liver. Its operation, then, is most wanted where this distention is greatest, which may be known, we have seen, by the state of the right hypochondrium, and will be least injurious where the strength is most able to bear so considerable a call upon it. When there is little distention of the liver, and the strength is much reduced, the operation of the blue pill, provided it agrees tolerably well with the stomach, is preferable. The relief obtained from it may be less speedy, but it will be obtained at less expense to the constitution. Instances frequently occur of the bad effects of not attending to this distinction. What is only a salutary evacuation in one case, is an overpowering cause of debility in another.

Plummer's pill often fits well on the stomach when both of the former preparations of mercury fail. The proportion of antimony in its composition tends to cause its influence to be exerted on the skin as well as on the liver; and hence in the cure of cutaneous affections it is held in merited estimation.

As the effect of mercury is only required to be transient in the first stage of dyspepsia, whatever form of the mercurial remedy we employ should be carried off by an aperient, either given with it or at a proper interval afterwards. Of these alternatives, we should (with the exception of peculiar cases) incline to the latter; for it cannot be questioned, that much larger doses are required to promote the hepatic secretion when combined with the dry purgatives, as colocynth, aloes, &c. and we have seen cases where it failed entirely to produce such effect. In the milder form of disease we are now speaking of, a draught of salts and fenna, taken in the morning after a mercurial pill the over night, will we think be found the least painful or debilitating in its operation. When mercury occasions much irritation of the bowels, its continued use brings on a degree of dysentery. The patient is tormented with griping and tenesmus, and at length passes little besides mucus, often mixed with a small quantity of blood. In such cases, we must discontinue its use for a short time; and when we find, as sometimes happens in such cases, that on returning to it the same symptoms constantly recur, and cannot be prevented by changing the preparation, or the use of anodynes and mucilages, it must be entirely laid aside.

Given under the above regulations, mercury is a very excellent remedy for the hepatic derangements of indi-

gestion. Its indiscriminate use undoubtedly does much harm; and there can be little doubt that various kinds of "antibilious pills" (as they are foolishly called), which are daily vended in great quantities, do upon the whole more harm than good. Indeed this must always be the case with patent medicines; no medicine can be energetic, unless it has the property of inducing derangement of some part; and therefore, if the production of a derangement from the natural state be not properly directed, much mischief must ensue. The indiscriminate use of mercury in gastric complaints has called forth these remarks; and we wish particularly to repeat to our medical brethren a fact well established by the testimony of the best authors; that mercury should hold no place in the treatment of simple indigestion, while the secretion of bile is unchanged; and that, when that change has occurred, its cure should be effected by the least possible quantity of this potent mineral. As mercury sometimes irritates the system at a rate not balanced by its beneficial influence, it becomes necessary to search for a substitute which may be employed instead of it. The combination of the nitric and muriatic acids, taken internally or used externally, as Dr. Scott first recommended, has appeared to us the most successful. See NITRO-MURIATIC ACID, vol. xvii. p. 104.

With respect to the more distant affections arising from dyspepsia, we have before shown, that, numerous as they are, they are for the most part the products of nervous irritation; hence depletion has little effect on them. When they are of that violent and uncontinued character which we have called, after Dr. Hall, the *Mimosis* urgens, antispasmodics, as musk, valerian, ether, emetics, &c. are the remedies indicated in addition to the usual dyspeptic treatment. The same remark applies to the spasmodic *dyspnœa*, *palpitatio cordis*, &c. When more permanent effects seem induced, counter-irritants are of essential service.

The affections of the head which occur in indigestion require more particular notice. We should be particularly careful to keep the circulation rather below than above the usual standard in cerebral affections, because of the formidable disposition to inflammation which they frequently and suddenly assume. On this account, when the pulse does not forbid it, and the cerebral is not relieved by the excitement of secretion in the gastric structure, topical bleeding is the most advisable step. This should be followed by the shower-bath, an agent at once exciting the skin and depleting the cranial circulation. This practice is useful in the state of *erethism* which we before noticed as described by Dr. Nicholl. That author recommends the use of the pulv. *ipêcac. comp.* but a specimen of the disease we lately saw seemed increased in violence after each exhibition of the above medicine. On the whole, topical bleeding, a cooled state of the external part of the head, the abstraction of strong light and of all irritating impressions from without, tolerably free purging, and the use of diuretics, are the best modes of treatment. In all head-affections, free discharges from the intestines and bladder are strongly required. In the head-ache of the first stage, emetics give temporary relief; but particular care is required to note the diagnostics, as stupor, or throbbing of the temples, which tend to show established disease in the head. When this occurs, or indeed when inflammation is set up in any structure, the usual treatment of the *phlogotica* must be combined with that in question.

The connexion between the functions of the skin and alimentary canal has been often adverted to. The former structure affords an excellent mean for relieving the disorders of the latter. Thus the medicated bath recommended by Scott is a more powerful agent in improving the secretion of the stomach, liver, and bowels, than the internal use of the acid. But the chief measure acting on the skin is the bath. Cold bathing is an old remedy in indigestion. It is seldom safe, however, in nervous or debilitated subjects. Where its use can be borne, a short plunge

plunge is the best mode of applying it; and much care should be taken that perfect dryness, and indeed re-action, of the skin, be produced, by rubbing with dry cloths. In some cases sponging only, followed by the same friction, is the furthest attempt at cold bathing which the delicacy of our patients' constitutions will allow us to make. The warm bath does not require the same limitation; and it deserves in our opinion more consideration than it generally obtains. A gentleman of much experience, Dr. J. Johnson, is of the same opinion; he observes that, if the general use of the warm bath should ever become prevalent in this country, it will produce a more beneficial revolution on the health and longevity of the inhabitants, than any change which the hand of time has ever wrought; and that, so far from weakening or enervating the constitution, it has a decidedly contrary effect; and therefore, in debilitated subjects, it is infinitely more proper and safe than the cold bath. Indeed the good effects of the latter result from the re-action of the system; but, as this re-action is entirely an effort of the constitution itself, to resist as it were, or undo, what the cold immersion had produced, a considerable degree of vital energy is necessary; otherwise some internal viscus may suffer. On the contrary, says Dr. J. the warm bath elicits the blood to the surface of the body, with hardly any of that re-action observed after the cold bath. The whole cutaneous system of vessels is thus filled with blood, while the vessels of the interior organs are relieved, and that without any particular exertion of the heart which might render it liable to subsequent exhaustion. The spirits too are raised, the pulse mended, and the appetite increased; in short, a general renovation is felt throughout the whole frame; an effect more remarkably observed after exhaustion or fatigue. The oriental nations have long appreciated its virtues in this respect. Homer describes Ulysses, among others, as refreshing himself with the warm bath, on his return home; and the numerous and splendid baths, by the building of which the Roman emperors gained so much popularity, will show that this comfort, or luxury, was no less esteemed in the west.

The warm bath will by no means be an effectual remedy in dyspepsia, unless the immersion in it be of much longer continuance than is usual in this country. Dr. Thomas, a practitioner who has spent some time abroad, informs us, that "upon the continent, where so much good is produced by this powerful remedy, no one thinks of recommending a patient to stay less than an hour in the warm bath; and at Ussat, where so many cures have been effected by means of the bath, and by such means only, I have known many weakly delicate patients take two baths of one hour each every day for three weeks without intermission; and I have no doubt in my mind, and the same conviction pervades medical men in general in France, that it is owing to this manner of taking the warm mineral baths, that so much good is effected by that remedy; and, by parity of reasoning, I may say, that little good is obtained from them in this country, because there is not sufficient time allowed for bathing."

The vapour-bath is also a remedy of great efficacy in the complaint in question.

The diseases for which the warm bath may be employed, are much more numerous than those where the cold bath can be exhibited with safety. And in fact it may be used on most occasions without premising the accurate discrimination required ere we adopt the critical measure of cold bathing. See the article BATHING, vol. ii. p. 803.

On the treatment of the *second stage* of indigestion, we have seen that, after a certain period, a change takes place in the nature of dyspepsia; that a disordered state of the circulating vessels of the stomach supervenes to suspension of nervous influence and of muscular propulsion; that this change happens at various periods, sometimes in a few days or weeks, but that not unfrequently it is not manifested for many months, more rarely for

years; that this state is characterized by a change in the phenomena of the circulating system, indicated by a hard pulse; and that there is likewise pain in the stomach. We consider these symptoms as indicating chronic inflammation of the stomach; and we may remark, that this opinion is borne out by analogical reasoning on what takes place in other parts, and by the dissections of the more marked cases which are recorded by foreign practitioners. We have therefore to reduce inflammation; and of course the stimulating measures which we have used in the first stage of indigestion are to be laid aside; but, in adopting the opposite or antiphlogistic treatment, we must consider that the stomach is the seat of complex functions; and that, though inflammation has supervened, nervous derangement and muscular inaction still remain. Moreover, the periodical action of the stomach, and its constant exposure to irritants, render general or sudden depletion of the contents of its vessels of little avail, since, however the latter may be depleted, and however perfectly they may recover their natural diameter, the frequent stimulus of foreign substances will tend to reproduce the morbid state of vascular fullness. The impeded nutrition which is present causes a debility of the system quite obnoxious to vascular depletion. The treatment of this stage of dyspepsia requires therefore particular attention, inasmuch as we have to reduce inflammation by one train of processes, and produce muscular and nervous action by another. As these are incompatible indications, the less must give away to the more important; that is to say, we must reduce the inflammatory action first, and consider the muscular and nervous debility afterwards. The former intention must be effected by applying leeches to the epigastrium, by cooling applications, as effervescent draughts and solutions of nitre, cold water, &c. and by a very abstemious vegetable diet. When these measures are successful, we may cautiously return to the use of bitters, &c. and thereby endeavour to remove the causes, i. e. morbid distention and diminished nervous power, which have produced the disease in question. When the inflammatory state has not continued long, and has not appeared till the nervous indigestion has been of long standing, we generally prognosticate its removal by the above-mentioned means with certainty; but, in proportion as it becomes more thoroughly established, we shall find less marked relief from the bleeding, and a much more aggravated and sudden return to inflammation when we attempt to stimulate by bitters.

It is at this period of indigestion that ipecacuanha is an excellent remedy. The effect of this substance is to produce secretion from the stomach, though, it must be allowed, not that which is commonly called the gastric juice; the nature of that fluid, or at least its peculiar effect on the nervous expansion, being altered. That secretion is an excellent means of removing local plethora is well known; and hence appears the advantage we derive from this drug. In regard to its dose, we should give as much as induces secretion without causing nausea, a phenomenon which tends to debilitate the muscular fibres of the stomach. A grain and a half, two, or in some cases three, grains will be sufficient. It is necessary, however, to produce secretion from a more extensive surface than the stomach itself: the bowels should be kept in an open state, and the hepatic secretions should likewise be promoted. In taking the first step, we should employ those purgatives which produce the least pain or irritation in their operation. Vegetable diet, which we have before spoken in commendation of, will in many cases relax the bowels; but, where this effect is not produced, aperients must be given. They should be of a mixed kind; they should comprehend many ingredients of this numerous class, avoiding however such as produce nervous irritation. We have commonly recommended, when it is sufficiently active, the *Confectio sennæ*; but many other formula will no doubt answer the purpose equally well. Of course, when one part of the bowels is more slug-

gish than another, we should endeavour to excite it by purgatives which act somewhat exclusively on it; as, for instance, rather more rhubarb must be administered when the duodenum seems inactive, &c. The number of motions must be somewhat regulated by the strength, &c. but three in the course of the day will seldom be too many.

We have noticed, that, when the first stage of indigestion has continued for some time, the function of the liver becomes disordered. A greater or less tendency to disorder in this organ, after it once appears, always continues throughout the disease, so that it is a constant attendant on the second stage; and those medicines which influence the secretion of this organ, therefore, always form part of its treatment. Of these we still find mercury by far the most efficacious. Several circumstances, however, render caution, in the use of this medicine, even more necessary in the second than in the first stage. Not only has the greater continuance of the disease occasioned a greater loss of strength; but its increase, and the change which has taken place in its nature, renders it necessary to employ this medicine for a longer time, and often in a way that more directly influences the state of the constitution.

In the first stage, as we have seen, we want only the transient effects of this medicine on the liver. On the other hand, we now want to induce a more permanent change in the diseased state of that viscus, and rather to restore the altered properties of its secreting vessels than simply to increase their action for the sake of removing plethora. It has been lately recommended, with this view, to give mercury in very minute and somewhat frequent doses. Dr. Philip says that he has "generally given a grain of the blue pill, sometimes only half a grain, twice or three times in twenty-four hours, till the secretion of bile appeared to be healthy, repeating these doses when it was again disordered; and by such doses, which may appear to many little better than trifling, I have seen the bile gradually restored to a healthy state, when larger doses had been employed in vain. They not only often succeed where larger doses fail, but the change, in proportion as it takes place more slowly, seems generally to be more permanent." We may add, that, in the second stage of indigestion, violent action of the abdominal viscera strongly tends to destroy their tone; and this forms another reason against employing large doses of mercury, since, by their action on the secreting surfaces, they promote sudden and debilitating evacuations; an effect very unfavourable in the weak state of the constitution which attends this stage.

By the above practice we avoid the occasional ill effects of mercury in a great degree, though some practitioners of distinction conceive it to be somewhat inert. Our own experience, however, is in favour of it; and in Dr. Hall's writings cases are mentioned in which the like diminutive doses of this medicine produced favourable results.

Much latitude will be allowed, however, in the use of mercury, since the difference of climate or of constitution renders a dose in some cases too-powerful, in others perfectly nugatory. There can be no doubt, for instance, that in hot climates a much larger proportion may be given of this medicine than in temperate; and the various degrees of susceptibility to its action, which different individuals exhibit, are equally well known and unaccountable.

When mercury disagrees with the bowels, conium, hyosiamus, or extract. papaveris, may be conjoined with it; or we may have recourse to the nitro-muriatic-acid bath as a substitute. The latter remedy is indeed sometimes of use during the intervals of using mercury; but it too often happens that the cathartic tendency of the mercury is increased by the acid. The bath must not be used during the inflammatory state of the stomach, but may be very advantageously prescribed when local blood-letting has been premised. The degree of action which the nitro-muriatic-acid has to exert on the constitution is

regulated by the strength of the health, and by the extent of the cutaneous surface immersed, a hand or a foot being first bathed; and, if its effects are borne well, by degrees the rest of the body up to the chin. See vol. xvii. p. 106.

Dr. Philip has recommended dandelion to be used as a substitute for mercury in dyspepsia. He says that "it appears to possess greater powers in this disease than are usually ascribed to it, but it requires to be taken in very large doses. It is best adapted to those cases, in which the bile is deficient or much disordered, while the power of the stomach is still considerable. In such cases, I have seen the patient restored by a strong decoction of dandelion used for common drink, without the aid of any other medicine. In addition to its effect on the liver, it tends to cool, and consequently allay the inflammatory diathesis, and often excites both the bowels and kidneys. The latter effect, which is best counteracted by alum, when the stomach bears it well, is frequently such as to make it necessary to discontinue the dandelion. The former is seldom considerable, and can always be restrained. It is often given with great advantage in aid of the small doses of mercury when the stomach bears it well, and enables us further to diminish the quantity of this medicine."

The functional derangements which occur as remote consequences of dyspepsia, are to be cured only by removing the original disease. The topical inflammations require additional remedies; for we have before noticed that, when of long standing, they often act as counter-irritants to the gastric disturbance. The liver, lungs, spleen, and heart, are most liable to this affection; and are all to be treated on these principles; viz. to withdraw nervous irritation by counter-stimulation, to bleed locally or generally according to the frequency and hardness of the pulse, and procure secretions from the abdominal viscera, and from the skin, by the warm bath.

The same rules apply to the treatment of the head-affections. Here the sympathy between the external and internal parts allows the additional use of cold lotions to diminish the action of the vessels of the head: a simple measure, but one of great efficacy. The erect posture, or at least a near approach to it, should likewise be insisted on; and a more active kind of purging than in the derangements of the abdominal viscera. The erethismal state of the brain should be treated with continued counter-irritation, and with much assiduity; since, when once it has apoplexy, this latter calamity is generally fatal, and appears uninfluenced by bleeding or any other known means of relief.

In the gouty and rheumatic affections of this stage of indigestion, in addition to the usual means, the Colchicum is by no means a despicable remedy. Indeed, where this drug agrees, it seems to reduce both the arthritic and the gastric inflammation at the same time. The use of an anodyne liniment likewise affords temporary relief to the rheumatic pains.

When the inflamed state of the mucous membrane has been communicated to the bowels, and piles, stricture, or tenderness along the course of the cæcum, are present, the most efficient method of relief is *anal leeching*. This practice has not obtained in our country the attention it deserves, though the great benefit our continental neighbours derive from it, should have taught us its common use long ere this time. We find some prejudice opposed to it; but, if properly conducted, it is by no means unpleasant or indelicate. The leeches may be applied to the fundament by means of a glass formed like an eye-glass, but of larger dimensions; and, after they have laid hold, the patient should sit over a bidet, and by the warm vapour or by ablution promote the discharge of blood. We have found this method more successful than even leeching over the epigastrium, where tenderness of the part is present; and it has this further advantage, that, from the nature of the sanguineous distribution, it directly depletes the whole abdominal viscera.

Pain

Pain in the course of the colon is often relieved by friction with a liniment, by suppositories and clysters. Before leeching has been used, the inflammatory state of the bowels is rather increased than relieved by cathartics; and, after it, those only of the mildest nature should be had recourse to.

The subjects of mælena, diarrhœa, &c. which would naturally follow here, must be deferred till our nosological arrangement brings them before us.

When inflammation of the mucous membrane of the lungs is connected with Dyspepsia, we have a very powerful agent in the *hydrocyanic acid*. This remedy has indeed been prescribed with success by Dr. Elliotson for the relief of all dyspeptic symptoms dependent on disturbed nervous power; but we have not introduced it into our list, as we have not been able to collect, from mere general experience, the like favourable testimony of its virtues; and it is so potent a drug, that we would not hazard its occasional deleterious effects, since the correction of the first stage of dyspepsia may generally be accomplished by milder measures. In the removal, however, of bronchitis, this acid must be regarded as an important agent, and one which at the same time perhaps relieves the original source of disease. It is given in the dose of half a minim at first, and this is gradually extended in proportion to the effect observed from it. Of course this complaint requires more strict attention to the purity of air, the regulation of temperature, and the perspiration of the skin, than other forms of the dyspeptic sympathies. It is generally accompanied with hepatic derangement; and on this account is usefully treated by small doses of calomel, persevered in until a healthy bilious discharge is seen in the stools.

The cachectic diseases of indigestion require in general a very remarkable change in the diet of the invalid; nor does it seem that we need in these cases so particularly regard the species of change, since an *alteration* of whatever kind is generally found useful: thus, a meat-diet will produce a cachectic state of blood in some, as a vegetable diet will in others; and a *change* is in either case clearly indicated, both by reason and experience. We shall take up this subject under the head Dythetica.

The chlorotic indigestion mentioned at p. 139, requires in general a more generous diet and more active exercise; and as, in females, the uterus is often implicated in the disease, steel, aloes, &c. are appropriate remedies.

The connection between urinary gravel and indigestion does not lead to any difference in the usual plan of cure; since, from whatever cause gravel may arise, it will require a peculiar treatment. It is worthy of remark, however, that beer, especially if stale, will cause the deposition of fabulous matter; while spirits, especially alcohol, diminishes this tendency in a remarkable degree. These facts are of course of moment in relieving the symptoms in question.

In the use of all these measures, and in their application to the various forms of dyspeptic derangement, the practitioner should endeavour so to conjoin them, and adopt their use to the idiosyncrasy of his patient's constitution, that he may not materially disturb the balance of power in the various parts of the system; but the use of remedies will seldom avail much, if the primary and fundamental sources of the diseases in question, viz. bad air, improper or excessive quantity of food, and sympathetic irritations, be not removed.

Genus VI. *Colica*, [from *κωλον*, the colon; this part being the chief seat of the disease.] Griping of the guts.

This genus contains six species. It is characterized by griping pain in the bowels, chiefly about the navel, with vomiting and costiveness. The causes of the complaint are local irritants, whether undigested aliment, poison, or crude secretions of the upper parts of the alimentary canal. Or it may, and indeed most commonly does, arise from sympathy with a remote part; perhaps

more frequently with the skin. Seven species are enumerated by Dr. Good, and Cullen mentions more; but the proximate cause of all these appears to be the same; viz. spasmodic contractions of the muscular fibres of the intestines.

1. *Colica ileus*, (*Colica spasmodica*, Cullen.) Characterized by retraction of the navel, and spasms of the muscles of the belly. It begins with a sense of weight or pain, at the pit of the stomach, attended with loss of appetite, yellowness in the countenance, a slight sickness, and costiveness; the pain gradually increases, becomes fixed about the navel, from whence painful dartings proceed in various directions; wherever pain is felt, soreness and tenderness remain some time afterwards. The sickness increases with the pain; and, at length, a vomiting of bilious matter comes on, the function being of course deranged by the disease of the intestines. The urine is diminished in its usual quantity, and a tenesmus sometimes adds to the distress. While the pain is spasmodic, the pulse remains unaffected, except concurring circumstances produce a change in it. The urine is various. If the smaller intestines are the seat of the pain, it is felt more acutely; if the larger intestines are the parts aggrieved, the sense of pain are more dull and heavy; sometimes there is a bitter taste in the mouth, and a yellowness in the countenance. Sometimes the disorder simulates a fit of the gravel; stones passing through the ureters; rheumatic pains in the muscles of the belly; the blind piles; stones passing through the gall-duct. Gravel in the kidney produces often colic-pains, not easily distinguishable; but, when stones pass through the ureters, the testicle on that side is often retracted, the leg is benumbed, and a pain shoots down the inside of the thigh. Rheumatic pains in the muscles of the belly rarely affect so accurately the umbilical region, but dart, in various directions, to the chest or to the pelvis, and are attended with soreness, not confined to the abdomen. The pain from the blind piles is confined to the rectum; and that from a stone in the gall-duct is felt in the pit of the stomach, occasionally shooting through the body to the back.

When the disorder is purely spasmodic, the mere alleviation of the spasm is sufficiently obvious. Ether, valerian, ammonia, opium, &c. being premised, means are to be put in force for procuring stools. Therefore, either soon after or in conjunction with an opiate, some cathartic medicine should be administered, either by the mouth or in a clyster. If the constipation has been but of short duration, the neutral salts will generally be adequate to the purpose of procuring evacuations; such as the magnesiæ sulphas, for instance, or the sodæ sulphas: both have the advantage of being conveniently repeated at short intervals, in small quantities, until the desired effect is produced; and their action is increased by their union. Castor-oil, a mild and tolerably-certain purgative, is the best medicine we know of. Indeed most painters who are aware of the utility of castor-oil escape the attack of this malady, to which (as well as to the next species) they are very subject, by taking a large dose as soon as they perceive the slightest symptoms of the disease. Where sickness is present, if more active means are required, calomel, combined with jalap and rhubarb, may be employed. Moreover, remedies may be applied immediately to the part affected, by means of clysters. Large quantities of warm water (to the extent of some pounds), injected by a proper syringe, have frequently had the effect of removing the pain and spasmodic stricture of the colon, partly by the soothing effects of the warmth, and partly by mechanical dilatation. Opium may also be administered in the same menstruum, combined with neutral salts, with considerable advantage. These emollient clysters act also powerfully in aid of laxative medicines taken by the mouth, particularly where the latter are impeded in their operation by a collection of indurated fæces; for, while the peristaltic motion of the bowels is roused by the laxatives

laxatives in the upper part of the canal, the obstruction is mechanically loosened, in the lower part, by the clyster. A solution of assafœtida, also, administered in this way, tends both to relieve the pain by its antispasmodic qualities, and also to stimulate the lower bowel to evacuation. But, where there is very obstinate constipation, a clyster of more efficacy is one made of turpentine, properly suspended in water by means of mucilage or the yolk of an egg. In cases where every purgative medicine has failed, and the most powerful clysters have proved ineffectual, the action of the bowels may be excited by throwing cold water on the lower extremities. When inflammation does not seem likely to occur, and powerful cathartics are required, the oil of croton will be found a remedy of great avail.

It is of much importance, however, to distinguish spasm from inflammation of the colon, with which it is sometimes connected, and into which it is likely to run. In fact, this always happens before a fatal termination takes place.

The former is thus distinguished from the latter affection. The symptoms, which imply the spasmodic state, are a soft pulse of natural or of little-increased frequency; the pain intermitting occasionally, or moving from one part to another, and being relieved, or at least not increased, by external pressure, and the occurrence of feculent evacuations, though the latter circumstance is seldom to be relied on. The symptoms, on the contrary, which lead to a suspicion of inflammation, are, unremitting severity of pain, obstinate constipation, tension of the abdomen, and an aggravation of the pain by pressure; a very-frequent small and hard pulse; the skin being hot and dry, or partially moist with clammy sweats; frequent retching, with a dry brown tongue, hiccup; and, above all, pain in the head, or disturbance of the cerebral functions.

Where inflammation is threatened, recourse should be immediately had to the lancet, and a free bleeding from the arm, from a large orifice, should be effected. In plethoric habits, this operation may require to be repeated, if the pain should not remit, and the pulse should remain hard and frequent, and if the blood drawn should exhibit the buffy coat or contraction of the coagulum. Where the symptoms of inflammation are less violent, leeches to the abdomen, the warm bath, fomentations, or a blister, may be applied. In strong habits, indeed, if the pain has been of considerable duration, inflammation is always much to be apprehended; and a moderate venesection may be beneficially employed in anticipating its actual attack. The tobacco-clyster is likewise useful in violent cases; but the dreadful effects this agent is capable of producing should render us very cautious in the use of it. Of course, opium, an excellent remedy in the spasmodic colic, should be entirely proscribed in this.

In the aggravated form of this attack, a symptom arises which gives name to the disease; namely, the stercoraceous vomiting, or *iliac passim*. In it the peristaltic motions of the intestines are totally inverted, and all their contents, even clysters, will be vomited; a circumstance always to be accounted highly dangerous; but, if the passage through the intestines be free, even though their peristaltic motion should be inverted, there is much more hope of a cure than when the belly is obstinately costive, and there is some fixed obstruction which seems to bid defiance to cathartic remedies.

Introsusception, ulceration, mortification, &c. are the ultimate consequences of the inflammatory process; occurrences for the most part fatal, or at least only deriving assistance from surgical operations.

A very fevere kind of colic is produced by the poison of lead. It is our next species; viz.

2. Colica rachialgia, (C. Pictonum, *Cull.*) The colic of Poitou; otherwise called the painter's or Devonshire colic. In this disease the pain is at first dull and remitting; but progressively growing more violent and continued; ex-

tending to the back and arms, and at last producing paralysis. We copy the following more detailed account of its symptoms from the *Encyclopædia Britannica*. "The patient is generally first seized with an acute pain at the pit of the stomach, which extends itself down with gripping pains to the bowels. Soon after there is a distension, as with wind; and frequent retchings to vomit, without bringing up any thing but small quantities of bile and phlegm. An obstinate costiveness follows, yet sometimes attended with a tenesmus, and the bowels seem to the patient as if they were drawn up towards the back; at other times they are drawn into hard lumps, or hard rolls, which are plainly perceptible to the hand on the belly. Sometimes the coats of the intestines seem to be drawn up from the anus, and down from the pylorus, towards the navel. When a stool is procured by artificial means, as clysters, &c. the feces appear in little hard knots like sheep's dung, called *scybalæ*, and are in small quantity. There is, however, usually an obstinate costiveness; the urine is discharged in small quantity, frequently with pain and much difficulty. The pulse is generally low, though sometimes a little quickened by the violence of the pain; but inflammatory symptoms very seldom occur. The extremities are often cold; and sometimes the violence of the pain causes cold clammy sweats and fainting. The mind is generally much affected, and the spirits are sunk. The disease is often tedious, especially if improperly treated, inasmuch that the patient will continue in this miserable state for twenty or thirty days successively; nay, instances have been known of its continuing for six months. In this case the pains at last become almost intolerable: the patient's breath acquires a strong fetid smell like excrement, from a retention of the feces, and an absorption of the putrid effluvia from them by the lacteals. At last, when the pain in the bowels begins to abate, a pain comes on in the shoulder-joints and adjoining muscles, with an unusual sensation and tingling along the spinal marrow. This soon extends itself from thence to the nerves of the arms and legs, which become weak; and that weakness increases till the extreme parts become paralytic, with a total loss of motion, though a benumbed sensation often remains. Sometimes, by a sudden metastasis, the brain becomes affected, a stupor and delirium come on, and the nervous system is irritated to such a degree as to produce general convulsions, which are frequently followed by death. At other times, the peristaltic motion of the intestines is inverted, and a true iliac passion is produced, which also proves fatal in a short time. Sometimes the paralytic affection of the extremities goes off; and the pain of the bowels returns with its former violence; and, on the cessation of the pain in the intestines, the extremities again become paralytic; and thus the pain and palsy will alternate for a very long time."

The cure of this dreadful disorder is to be effected by removing the spasmodic constriction of the intestinal canal. In this form of colic there appears to be little disposition to inflammatory action; and therefore, wherever colic can be decidedly traced to the operation of lead, we should administer a large dose of opium, and repeat it at short intervals, until the pain (and of course the spasmodic stricture) is relieved. When this effect has been produced, we may proceed to excite the action of the bowels, and procure proper evacuations of feces; after which, the cure is soon completed by tonics and cordials. This practice of first relieving the pain and constriction by opiates, before the bowels are attempted to be forced by purgative medicines, was strongly recommended by Dr. Warren, (*Med. Transact.* vol. ii.) and was also employed by Dr. Darwin, (*Zoonomia*, vol. ii.) As assisting the antispasmodic operation of opiates, the warm-bath, fomentations, &c. should likewise be resorted to.

Of the palsy which succeeds to Colica pictonum there seems to be a tendency in the constitution, especially in recent cases, to recover itself, if the exciting cause is avoided;

avoided; and this may be aided by the local stimulus of warm water, friction, &c. and by mechanical support to the paralyzed hands. Dr. Pemberton has recommended that, for this latter purpose, the patient should have his hands and fingers extended upon a sort of battledore, tied to the fore-arm, which should be worn daily. He affirms that, in several instances, a perfect cure of the paralysis from lead has been effected in the course of a few weeks. (Treatise on Dis. of the abdominal Viscera.)

Some varieties are mentioned as arising from other causes than the poison of lead; but it does not seem that this peculiar form of colic called rachialgia, and attended with paralysis, is produced by any other materia. It has indeed been supposed, from its prevalence in cider-countries, that acid ingesta might produce it; but this occurrence seems to have arisen from the frequent employment of lead in the machinery of cider-making. The reader will find this opinion very clearly proved by consulting Sir George Baker's papers in the Medical Transf. vol. iii. Dr. Hunter, *ibid.* Dr. Fothergill, *Med. Obs. and Enq.* vol. v. Indeed the pain arising from acid ingesta is generally with tenesmus and relaxation rather than with constipation.

Alum has been strongly recommended in rachialgia. The *modus operandi* of this drug seems obscure; but it deserves mentioning from the respectability of those who introduced it. The same thing may be said of the Cupri Sulphas. Salivation, percussion, electricity, &c. may all be used with benefit in this kind of palsy; but they will seldom be successful if, as is generally the case, the attack of colic shall have left behind hindrance of the gastric and intestinal functions. It is in cases when the latter circumstance happens that the Bath water is a useful remedy.

It is obvious that the return of Colica pictonum, and of the palsy which succeeds it, can only be effectually prevented by relinquishing those avocations which necessarily expose the patient to the influence of the poisonous metal which excites the disease; or by refraining from those liquors with which any of its preparations are intermixed. When the business of the patient precludes this, much good may be derived from purgatives whenever constipation has continued for a whole day.

When colics arise from acrid poisonous matter taken into the stomach, the only cure is either to evacuate the poison itself by vomiting, or to swallow some other substance which may decompose it, and thus render it inactive. The most common and dangerous substances of this kind are corrosive mercury and arsenic. The former is easily decomposed by alkaline salts; the latter by magnesia in large quantities. Some kinds of fungi, when swallowed, are apt to produce colics attended with stupor, delirium, and convulsions; and the same sometimes happens from eating a shell-fish known by the name of muscles. The effect of the latter is removed by vomiting. See the article POISON.

3. Colica crapulosa, (C. accidentalis, C. meconialis, *Cull.*) Colic from indigestion. The pain accompanied with nausea, head-ache, and dizziness, before vomiting, and often terminating in a griping looseness. It is produced by eating indigestible aliments, or digestible aliments in too great abundance. In this species the vomiting or looseness, or both together, frequently operate a cure. When they do not, we may, following the natural indications, excite sickness and purging.

4. Colica flatulenta, wind-colic. In this species, the pain is acute, extending to the pit of the stomach, often impeding respiration; accompanied with great fulness and flatulency; and relieved by pressure, bending the body forward, or expulsion of wind. The disorder is produced by crude and flatulent fruits, and hence common among children. It is, however, more generally a symptom of dyspepsia, and hence the cure is obvious. The paroxysm is to be relieved by antispasmodics and opium; the causes removed if possible, and the bowels kept open.

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A similar treatment is requisite in the next species, with this restriction, however, that it is so often connected with general disturbance of the nervous and vascular systems, that opium should be less freely given, and suppurations and clysters used in preference to irritating purges.

5. Colica stipata is characterized by severe pain, obstinate costiveness, great tension, with little flatulency: the vomiting is sometimes accompanied with fæces; the costiveness, with bloody strainings: it terminates, where not fatal, in a free defection of the infarcted matter. Dr. Good gives three varieties.

a. *A viscido meconio*, from viscid meconium. Colica meconialis, *Sauv. Cull.*

6. *A fæcibus induratis*, from indurated fæces. C. stercorea, *Cull.*

γ. *Ab enterolitho*, from intestinal concretions. C. calculosa, *Cull.* Ileus calculosus, *Sauv.*—The early volumes of the Phil. Transf. contain some very extraordinary cases of this kind. The most singular is in No. 3. p. 68. anno 1681. continued in No. 181. p. 94. anno 1686. by Dr. König, of Bern. The patient, Margaret Lower, a young woman of twenty-five, discharged continually the contents of the intestines, and even the clysters that were injected, by the mouth, and at length a number of stones as hard as flint, some in fragments, some of the size of pease, others of that of filberts. A clashing of stones against each other was felt by pressing the hand upon the abdomen: there was great constipation, severe gripings, dysury; and the urine, when voided, was often loaded with a gravelly matter. The aliment and injections being constantly returned by the mouth, Dr. König desisted for four months from offering her either meat, drink, or medicine of any kind, excepting occasionally a spoonful of oil of almonds. Blood was now and then vomited from the violence of the spasmodic action of the stomach; and frequently urine, to the amount of three or four ounces at a time, of a strong taste and smell. The disease seems to have lasted, with remissions, from January 1678 to February 1683, at which period the history is abruptly dropped, though the patient seems to have been in a state of recovery. It was preceded by the appearance of vesicular eruptions in the skin; and was probably produced by their repulsion. The chemical examination of the calculi is loose and unsatisfactory.

6. Colica callosa. This species of colic differs materially from all the preceding; for here the contraction of the muscular fibres is limited to a small portion of the intestine; and, analogous to what we observe in the urethra and other membranous canals, the repetition of this action often ends in a certain permanently-contracted state of the part affected. In the early stages, however, this seems merely a diminished sphere of contraction acquired by the fibres in question; for they are still capable of dilatation, and no thickening of substance is at first perceptible. This state cannot however continue long; the stricture becomes thickened, and somewhat indurated, and the passage of fæces in a great degree interrupted.

The situation in which we meet with this stricture is more commonly about the termination of the colon, and at the projection of the sacrum, than any other part of the intestinal canal: and, when one stricture is discovered in this situation, there is often another a few inches lower in the gut. This does not, however, uniformly happen, a stricture being often met with about the termination of the colon, where there is none in the intestine; and the same impediment has been found between three and four inches from the anus, where there has been none higher. But these contractions occur so exclusively in most cases about the sigmoid flexure of the colon; and near its termination in the rectum, that this part should be carefully examined in every case of obstruction.

Although the above parts of the colon are the most obnoxious to strictures, yet it is evident the complaint may take place in any part of it: "I have once seen," says Dr. Baillie, "one of the vulvulæ canniventes much

R r

longer

longer than usual, and passing round on the inside of the jejunum like a broad ring. The canal of the gut was necessarily much narrowed at this ring; but no mischief had arisen from it. This malformation, however, might have laid the foundation for future mischief; some substance too large to pass might have rested on the ring, and produced inflammation, ulceration, and untimely death." And, in a case published by Dr. Combe, in the fourth volume of the *Transactions of the College of Physicians of London*, where there was an uncommon pulsation in the aorta, dissection discovered the lower part of the ilium, as far as the colon, contracted for the space of three feet, to the size of a turkey-quill; the aorta was in a perfectly healthy state.

The symptoms indicating the presence of stricture in the rectum, as chiefly copied from the accurate work of Mr. W. White, are, habitual costiveness; occasional uneasiness, arising from a sense of fulness in the course of the transverse arch of the colon, but more especially towards the termination of its sigmoid flexure, chiefly occasioned from wind meeting with some obstruction downwards. The patient is often sensible of the aggravation of this symptom from a variation in the quality or quantity of his food. Sometimes the fulness may be felt externally, in the course of the sigmoid flexure of the colon. Although this symptom frequently happens to be the first to arrest the patient's attention, and continues some time before any particular local inconvenience is experienced from the passing of the fæces, yet this by no means invariably occurs. Besides the sense of fulness just noticed, other sensations are often excited in the course of the colon; viz. acute pain, a sense of pressure when the fæces accumulate above the stricture; violent spasmodic contractions in different parts of the intestine, which usually happen after the colon has been exerted by expelling the fæces. Sometimes the patient feels as if tightly girded with a cord. It may be proper to notice, that these different sensations are in general aggravated, in proportion as the stricture is seated high up in the rectum. Sooner or later the patient experiences an uneasiness on going to stool, attended with difficulty in voiding the fæces. As the disorder advances, the alvine excretions become gradually more scanty, the fæces are ejected sometimes flat, at others of a triangular form. They are smaller than natural; and are often discharged with a squirt, sometimes accompanied by a sudden and loud explosion of wind.

The same phenomena are thus concisely described by Dr. R. White in the fourth volume of the *Memoirs of the London Medical Society*. "When a person somewhat advanced in life is troubled with frequent constipation, complains of fulness and weight in the stomach, with repeated inclination to discharge the contents, and uneasy rumbling in the belly, and distention in the lower part of it, with a sensation of numbness toward the upper part of the sacrum, extending down the rectum; repeated fruitless efforts being also made to pass a stool, attended with a sense of constriction and tenesmus high up in the rectum, and flatus, which seemed to the patient to occupy the intermediate space, bursts forth; clysters failing as well as medicines, and the complaint unattended with fever or pain;—it will be reasonable to expect some mechanical obstruction in the passage."

After an evacuation, a sensation commonly continues for some time, as if the whole of the fæces had not been expelled. This by degrees goes off, and the patient feels himself tolerably easy until the next time of going to stool, when a similar sensation recurs.

With regard to the lessened diameter of the fæces just noticed, which must necessarily be the case whenever a permanently-contracted state of the gut takes place, there are some exceptions. If the stricture indeed should happen to be so low in the rectum as not to allow room for the accumulation of fæces, it must appear evident that they will be found uniform in diameter, in proportion to

the degree of stricture, while they continue to be discharged in a figured state. And also, when the stricture is high up in the rectum, so long as the gut below retains its natural expulsive power, an accumulation will be prevented, and the diminished size of the fæces will continue. But, as the disorder increases, the inferior portion of the intestine gradually loses that power; and, when the contraction becomes considerable, a small quantity of fæces only passes at a time through the stricture, and, not being sufficient to stimulate the lower part of the rectum, (which in a great measure is deprived of its natural action,) an accumulation goes on from time to time, until at length it becomes difficult to remove; and, on those occasions, fæces of a natural size have been sometimes discharged.

Pain of the back, about the sacrum, is a very common attendant on stricture in the rectum, and sometimes a primary symptom; the pain frequently shooting down the thighs, and in some instances to the soles of the feet. Hæmorrhage is also a frequent occurrence, as well as a mucous discharge. Mr. White also has found pain in the back part of the head a usual symptom of this disease.

When the foregoing symptoms lead us to suspect the presence of stricture, manual examination must be had recourse to. Indeed the matter can only be determined by this method. "This ought to be performed in the most careful and attentive manner, seeing there is a possibility of mistaking the complaint either for a diseased prostate gland, or for a scirrhus uterus, especially if the hardness is attached to the cervix uteri, or back part of the vagina. In prosecuting the examination, the first step to be taken (after the bowels have been emptied) is to introduce the finger (oiled) as high up the rectum as possible, at the same time desiring the patient to bear down, as if going to stool. For, if the examination is first made by introducing a bougie, it may happen that the instrument is pushed between the folds of the intestine, particularly if there should be particular laxity of its internal membrane; and the practitioner may be led to suppose there is a stricture, when in reality none exists. If, however, on introducing the finger, neither stricture nor induration can be discovered in the rectum, a bougie, ten or twelve inches in length and pretty thick, must be introduced, and passed as high as the termination of the colon; which will easily be done, if stricture is not likewise present at the lower part of the rectum."

This complaint is liable to be confounded with diarrhœa, dysentery, piles; indeed with almost every chronic disease of the intestines, and, above all, with scirrhus uteri, and scirrhus of the rectum. So much difficulty, indeed, occurs in respect to the former, that Dr. White says, "Symptoms of the contracted rectum in the female are so similar to that of a scirrhus uterus, that I do not know any mark whereby the one disease can be distinguished from the other, excepting that in the latter the urinary bladder is more liable to be affected than in the former; though sometimes pain and difficulty in discharging the urine attend that also."

In distinguishing this case from *Proctica callosa*, or scirrhus of the rectum, we should notice, that, in simple stricture, pain is only experienced on going to stool; while, in a scirrhus state of the rectum, the sufferings are not only greater at these times, but there is also, at other times, great pain about the sacrum, often shooting down the thighs, as well as a sense of burning heat and pain in the rectum. In this last deplorable disease, especially in its advanced stages, the fæces passed are generally in a liquid state, so that the disease may be confounded with a chronic dysenteric complaint. In strictures of the rectum, there is little emaciation or loss of strength until the disorder is far advanced; the countenance then becomes sallow; and, in some instances, the pulse is quick, with other hectic symptoms. Moreover, as we before remarked, the simple stricture is higher up than

than the scirrhus, and not generally of so hard and unyielding a structure. The clearest diagnosis is derived, however, from the introduction of a canula, as recommended by Mr. Coley of Bridgnorth, in a paper read to the Medico-Chirurgical Society. This gentleman having a patient under his care, whom he was unable to afford relief to by a common bougie, since that instrument invariably bent upon itself, had recourse to a tin canula, for the purpose of giving support to the yielding bougie. The experiment succeeded; and, having occasion some time after to increase the diameter of his canula, Mr. Coley found that, by holding a lighted candle at the end of it, he could readily distinguish the contracted part of the intestine.

In the treatment of this affection, the principal part consists in removing the causes of irritation by diet of the least irritating kind, as jellies, fago, &c. and evacuating the bowels daily by clysters of warm water. When injections cannot be thrown up in the ordinary way, from the contracted state of the passage, a large hollow bougie may be fastened (instead of a common pipe) to a bladder, by which means they may be conveyed beyond the obstruction.

Nervous irritation may be lessened by conium, hyosciamus, &c. and the combination of the blue pill with them is generally required to promote the biliary discharge, which is of course much deranged in cases of long standing. If purgatives are given by the mouth, none of this class should supersede castor oil. It is scarcely necessary to add, that aloetic cathartics tend to increase the complaint. In respect to the regulation of the alvine excretions it is proper to remark, that attention to this part is not only necessary in the constipated state of the bowels, attendant on the early stage of the disease, but also in its more advanced progress, when diarrhoea has supervened, because the evacuations are seldom in sufficient quantity to relieve the bowels, without the aid of laxatives.

The local application of the bougie is the next thing to be considered. This will often produce much irritation and aggravation, unless nervous excitement be removed by emptying the bowels and regulating the diet previous to its use. Before employing this instrument, we should be well assured that scirrhus is not present, as it uniformly aggravates that disease. The bougie should be, at first, of such a size as to pass the stricture without considerable resistance, lest irritation and inflammation be excited. The size should also be increased very gradually till the parts become accustomed to the stimulus. There being always more or less of spasmodic action excited by the bougie, it should be introduced slowly and gently, waiting a little when it touches the stricture, before it is pushed through. At first it should not remain longer than half an hour in the rectum; if there be much irritation, not so long. By degrees it may be allowed to remain eight or ten hours at a time, with little or no inconvenience to the patient. In general, it may be passed daily. From four or five to eight or ten weeks will elapse before the stricture admits a full-sized bougie; even then, the instrument must be gradually left off. It is found that the natural action of the bowels is generally much improved by the application of the bougie. As auxiliaries we may mention the hip-bath, and injections with extract of poppy. The former may be used for a few minutes before employing the bougie; and the anodyne injection after the bougie contributes to lessen the morbid irritability of the part. With respect to the kind of bougie, we should prefer that used by Mr. Coley, though perhaps, this is not a matter of the first importance. Mr. Coley's bougies are composed of lint rolled up, tied at the lower end with string, which forms a loop about three inches long, for the purpose of being secured to a T bandage. They are to be immersed in a composition of lead four parts, and wax one part; and then drawn through a wooden frame, having holes of various diame-

ters. Great advantage, our author observes, will be derived from making the points conical. His manner of applying them differs from the common mode in this, that they are *wholly concealed within the rectum*, as will be presently described; which he considers a great improvement, as it enables the patient to walk about, or even ride on horseback, during the use of them. He advises them to remain in the bowel, if possible, all night; which, he thinks, has the effect of promoting the absorption of diseased structure, by long-continued pressure, as well as of resisting the tendency to contract. At the same time, he observes, that the discharge of the cerate, produced by the heat and moisture of the anus, is avoided; the cerate *not being melted by any portion of the intestine above the sphincter*.

Mr. White mentions a variety of this disease, which arises in consequence of venereal infection. "When the disorder proceeds from this cause, it generally commences with an appearance either of ulceration, or excrescence about the verge of the anus. The sphincter ani becomes gradually contracted; and, the disease extending upwards within the rectum, a considerable thickening and induration of the coats of the intestine take place, which produce great irregularity and contraction in the passage. Sometimes there is a continued line of contraction from the anus, as far as the finger can reach, then terminating in a kind of cartilaginous border, the inner membrane having a thickened and condensed feel. There is often a discharge indicating a diseased, if not ulcerated, state of the inner membrane above the contracted portion of intestine. All the cases which I have hitherto met with of this nature, have occurred in females, and they have uniformly proved incurable, when attended with the structural derangement just described."

The rectum is also liable to contraction from tubercles situated immediately above the sphincter ani, very different from the soft bluish hæmorrhoidal tubercles which often surround the anus. These last protrude when the patient strains; and, when returned within the sphincter, no hardness can be perceived in the gut. It is the reverse with the other tubercles; they do not come below the sphincter, and they have an indurated feel.

The species of contraction noticed as the consequence of venereal infection, Mr. W. has found exasperated by the bougie, even when conjoined with a regular course of mercury. "In the tuberculated state, however, arising from a similar cause, (he says,) the bougie will be found of great service." In scirrhus of the rectum, the bougie would manifestly be improper.

Sometimes stricture is attended by prolapsus ani, fleshy excrescences, or hæmorrhoidal tubercles, which prove a hindrance to the use of the bougie, and require to be previously removed by ligature or the knife. But, in doing this, he must be careful not to include any portion of the prolapsed intestine, which sometimes comes down with the excrescence. The prolapsus ani, however, which occurs as the consequence of stricture in the rectum, is very partial, and unlike the common prolapsus. Whilst the whole of the lower portion of the rectum protrudes from a relaxation of the sphincter, this only occupies one side of the anus, forming a pendulous flap. It is necessary to push this flap gently up with the finger beyond the sphincter, to make way for the bougie to pass, which otherwise would be apt to get entangled in the prolapsed portion of the intestine. The use of the bougie will sometimes overcome this impediment; but, if it should continue after the passage is dilated, and prove troublesome, the pendulous part may be removed with the knife, and the patient freed from future inconvenience.

With regard to the division of the stricture, as practised by Wiseman and others, there can be no doubt of the expediency of the operation in some instances, where the bougie fails, and the stricture is of a cartilaginous hardness. See the article SURGERY to which this

Genus VII. *Coprostasis*, [from *κοπρος*, dung, and *στασις*, stagnation.] Retention of the Fæces. This genus has only two species.

1. *Coprostasis coacta*, (Obstipatio, *Cull.*) Costiveness. This is a complaint to which sedentary persons and bonvivants are much exposed, and which has long and justly been considered a frequent cause of the numerous dyspeptic cases we daily witness. Its obvious cure is the use of cathartics; and for these medicines formulæ abound in every family. The frequent recourse which is had to purgatives tends, however, to impair the functions of the intestines, by rendering the peristaltic powers inactive except under the influence of stimulus; and further, even this stimulus, as is well known, gradually loses its effect by repetition. On this account our therapeutical indications should embrace a wider field of remedial agency. As the muscular fibres are the agents of the peristaltic motion, we should endeavour to strengthen the tone of the muscular system generally, since one part is seldom weak without all participating in the same debility. This purpose is peculiarly to be effected by exercise to such a degree as to strengthen muscular contraction without producing fatigue; by the cold bath, and by medicines which are said to give tone to the muscles. Mr. Howship, in his work on the intestines, says, that bark internally administered for some continuance will bring on the healthy action of the bowels to such a degree that purgatives become unnecessary. The best method of using it seems to be to unite it with a moderate dose of cathartic medicine, and then gradually diminish the dose of the latter, and increase that of the former.

If costiveness continues, however, a clyster of warm water will produce the alvine discharge, and without, of course, stimulating in any inordinate degree the entire secretion, since this measure does nothing more than dissolve the fæces. The use of clysters is becoming more fashionable in this country, and there is every reason to believe, that, if we used them oftener, and applied drastic purges less frequently, the digestive apparatus of most persons would be found in a better condition. It has been recommended by some to endeavour to institute regular stools by voluntary endeavours at regular periods; but we believe this will seldom do good, except when an indolent habit of neglecting the calls of nature has been the cause of the complaint; and, even then, straining should not be long persisted in.

Costiveness seldom occurs in young infants. When it does, it always arises from badness or deficiency of the nurse's milk, or from the food. If one copious evacuation take place every twenty-four hours, and the infant be thriving, there is no occasion for interference; but, if there be any greater torpor of the bowels than this, suitable remedies are to be employed. For this purpose, a brisk laxative may be given every day, for four or five times successively. The best laxatives for infants are manna, calcined magnesia, and cold-drawn castor-oil. Where these means fail, and there is reason to attribute the costiveness to the nurse's milk, we must regulate the diet, and open freely the bowels, of the latter. But, if it be found that the milk still possesses that injurious quality, the nurse should, if possible, be changed. Where this cannot be done, four or five drops of antimonial wine may be given to the infant every night at bed-time.

2. *Coprostasis adstricta*. In this species the same general treatment should be regarded. Purgatives of a gentle kind, and gradually lessened as they are found effectual, are the first agents. Diet should be used of a relaxing kind, we mean such as is principally composed of green vegetables. The sympathy which exists between the skin, the mucous lining on one part of the alimentary canal and another, render medicines applied to the stomach and skin, of effect on the bowels; so the warm bath, nauseating doses of calomel and antimony, will, if persevered in, sometimes effect a cure. Constipation

often occurs without producing much inconvenience. Some persons are accustomed to have their bowels moved not oftener than twice a-week; and, to such, a week's costiveness is attended with no particular inconvenience. Chaptal mentions the case of a female patient, who, for four months, had no discharge either from the bowels or kidneys, and as little evacuation by sweat, notwithstanding that her diet was confined to milk-whey and broths. And the writer of this article is acquainted with a lady who often passes a week or a fortnight, and on one occasion passed a month, without a fæcal evacuation: her urinary discharge is copious, but clear; and no extraordinary degree of perspiration is manifest on her skin. But this is nothing to cases related in old books, as in the early volumes of the *Phil. Trans.* and of the *Journal des Sçavans*: from these and such like authorities, Dr. Mason Good has quoted cases of fæces retained for six months—two years—three years—seven years! *Credat Judæus apella!*

Genus VIII. *Dysentery*, [from *δυσ*, bad, and *εντερος*, bowels.] Dysentery. Gripping and tenesmus; frequent mucous and bloody digestions, the fæces seldom discharged, and in small quantities. Bloody flux.

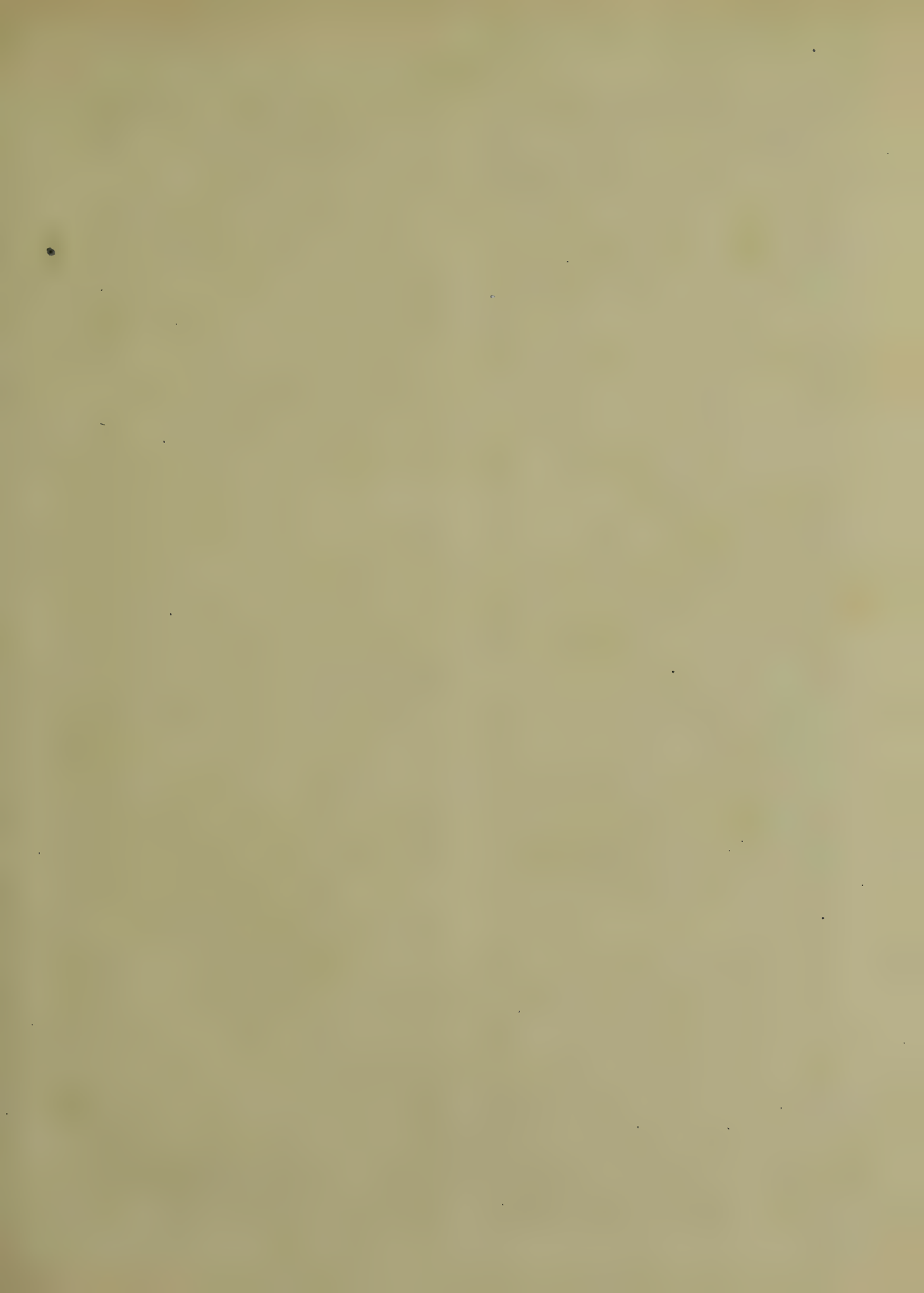
The word *dysentery*, as used by the ancients, had no very precise signification. Originally its import was "an affection of the bowels" in general; and we find Hippocrates using it, not only to signify all ulcerations, but all hæmorrhages, of the intestines (even those which are critical and salutary), and likewise every kind of flux; with or without blood. (*Prorrh. 2. et Epidem. lib. ii.*) It would seem, however, that, after his time, some of the other Greek authors, whose works are lost, were sensible of this want of precision, and therefore restricted the meaning of the word to an ulceration of the bowels, attended with gripes and *tenesmus*, (or straining,) and with mucous and bloody stools. For a disease with these symptoms Celsus calls *tormina*, and says it is the *dysentery* of the Greeks; and Cælius Aurelianus, retaining the Greek name, describes the dysentery much in the same manner with Celsus. (See *Cels. de Med. lib. iv. cap. xv.* *Cæli. Aurel. de Morb. Chron. lib. iv. cap. vi.*) Yet Galen returns to the looser acceptance of the word, sometimes defining a dysentery "an ulceration of the bowels," at other times mentioning four species of that distemper, all with bloody stools; but of which only one agrees with the *tormina* of Celsus, or the dysentery of the moderns. Aretæus confines the term to an ulceration of the bowels; and this notion of the constant ulceration of the bowels, in conjunction with dysenteric symptoms, prevailed in all medical writings until the time of Sydenham and Willis. Dr. Good mentions two species of this disease:

1. *Dysentery simplex*, unaccompanied with fever: the fæces, when discharged, evacuated without considerable pain, of a natural quality, and affording ease.

2. *Dysentery pyretica*, accompanied with fever, great loss of strength, and depression of spirits: the fæces, when discharged, of various colours and consistence; highly fetid, and mixed with putrid sanies, sebaceous matter, or membranous films.

Of the first species of dysentery it is unnecessary to say much; its cure is effected by milder means than the second, though according to the same indications. Nor, important and dire as the second form is, will it require a long discussion, since its nature has been so closely studied, and its method of cure so well established of late by our colonial surgeons, that we have the satisfaction of presenting more general principles as guides on this subject than we are enabled to do with regard to most other diseases.

In speculating on the nature of dysentery, the first thing that requires our consideration is the increased discharge from the bowels. Of the cause of this phenomenon one explanation alone presents itself; viz. a more rapid passage of the secreted fluids through their vessels;



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or, in other words, excitement of those vessels. Whether this excitement be deserving of the name of *inflammation* has been disputed. It is, however, a question of no great moment. We shall have occasion to show, when the subject comes before us, that the two above-mentioned states are, as far as regards the mucous membranes, very closely allied; and in the present case, even if inflammation be not the mode of action primarily established, dissection shows that it is almost always unequivocally and extensively present in fatal cases.

It has been objected against considering this disease as inflammation of the bowels, or *enteritis*, that the latter disease is uniformly accompanied with *costiveness* and suppressed secretion. It must be noted, however, that a distinction should be made between inflammation as it affects the exhalant orifices of vessels, and the same action affecting the blood-vessels more extensively. As far as regards the bowels only, it seems very clear that diarrhoea and dysentery are the same disease, since increased and morbid secretion are in each apparent. Dysentery, however, appears to affect a larger extent of the system than the former complaint; and indeed we cannot help coinciding with Dr. J. Johnson in considering that we must look to a series of causes rather than to a proximate one for illustrating the nature of this disease. From the labours of this author and of several of his contemporaries it is made evident, that the skin and liver are the parts primarily affected in dysentery. The disease happens for the most part in warm climates, where of course these organs are subjected, as is well known, to the influence of debilitating agents. It happens too, most commonly, when wet or damp weather supervenes to that which was airy and warm. That such change of temperature should produce this disease in some cases, while enteritis or other maladies are caused by the same agent at other times, can only be accounted for on the assumption of predisposition to disease. Thus we should be inclined to think, *a priori*, that hepatitis, cholera, and dysentery, might be brought on by the same causes, according to the debility which the habits or constitution of the individual affected might produce in a particular part of the system: and this accords with the experience of the best practitioners. In fact a little consideration shows us, that this opinion may be pushed much further. In cold climates the lungs are the organs which undergo the greatest degree of stimulation from the atmosphere; and hence, if the cutaneous perspiration be checked, we find a vicarious discharge take place on the bronchial membrane, and pneumonia and phthisis become common. So, the liver being the part most called on for exertion in warmer climates, and the whole of the digestive powers being weakened in the same ratio, we find, in these situations, that the hindrance of the cutaneous discharge causes larger afflux of fluids to the abdominal viscera, and a consequent disturbance of function.

Stimulating and indigestible diet, which is often used by the European in tropical climates, has been mentioned as another cause of the prevalence of dysentery; and Mr. Bampfield (*Practical Treatise on Dysentery*) is of opinion, that the peculiarities of clothing may be looked to as another cause. He says, "The copious perspiration of the newly-arrived European becomes accumulated, when he is sitting or walking, on the lower part of the shirt, more especially about that part of the abdomen where the waistband of the small-clothes or pantaloons presses against it, the tight or close application of which occasions an increase of heat and of perspiration at this particular part during the day, and intercepts the exhalation as it flows down the body; hence, if he should lie down in this state, cold will be induced on a particular part of the abdomen, by the evaporation of the exhaled fluid from the wet linen in contact with it; perspiration, before profuse, will be now effectually suppressed, and its injurious consequences be felt by the chylipoietic viscera."

It is a proposition almost proved, then, that the skin

is first affected in dysentery, and that a vicarious discharge of mucus takes place from the bowels. The stoppage of the perspiration induces moreover a general plethora of the abdominal viscera; and, as the liver commonly participates in the inaction of the vessels of the surface, this important gland, and probably other glands, fail to unload this plethora by secretion; so that not only is a great discharge thrown on the bowels, but, the latter organs being insufficient for its removal, a generally plethoric and febrile state is established. The irritation made on the nerves of the bowels by the morbid secretions induces irregular and violent contractions of the muscular fibres; and hence we explain the occurrence of pain, tenesmus, and retention of fæces, as well as of those permanent strictures which are sometimes found in these parts on dissection.

The first notice of this disease is generally a sensation of chilliness and slight rigour; to this succeed anorexia and uneasiness in the bowels; in a few hours this is followed by griping and purging, attended with tenesmus, during which mucus only is evacuated; at the same time febrile symptoms make their appearance; the skin becomes hot and dry; and restlessness, and sometimes delirium, occur; an indescribable languor soon after this pervades the muscular system, blood is poured forth (when from the rectum in streaks, when from the higher parts of the bowels perfectly mixed) with mucus. Severe pain and incessant purging attend the motions, emitting little odour, and often containing membraniform lymph. If the complaint continues uninfluenced by medicine, or receives no relief from the exhaustion of the vessels by their spontaneous action, death occurs with the usual symptoms of high inflammation and mortification. Or, if the disease does not arrive at this termination, a chronic state of the disease is induced, which, lasting for a longer or shorter time, ends in simple diarrhoea, in ulceration of the villous coats, in permanent contractions, or more favourably and less frequently in recovery.

The degree of violence with which the sanguineous and nervous systems are affected is various. Sometimes the pulse is little altered; and in this case we seldom find much blood in the stools, but merely mucus and serum, and those in small quantities. A pain in the abdomen is felt just before each evacuation, and at that period only. From this state we find every grade of fever, and increase of the other symptoms in proportion, until we arrive at a variety in which the pulse is accelerated to an amazing height, and delirium manifest; in which there is a constant fixed acute pain of some part of the abdomen or intestinal canal, including the parts contained in the pelvis; obstinate retention of fæces, but very frequent and copious dejections of mucus, serum, or blood, or a mixture of these, together with severe tormina and tenesmus. The blood drawn and concreted exhibits the inflammatory buff. Sometimes the fever is of the intermittent or remittent kind.

The cure of dysentery is founded on the following indications: viz. to remove the violence of morbid action, less inflammation, and its fatal consequences, should come on; to restore the balance of the circulation; and, lastly, to correct the altered state of the secreting vessels of the intestines, and allay the contraction of the muscular coats of the same structures. The first is, of course, done by bleeding. Sydenham used this measure, though not to any important extent; and it was not till after the late war on the peninsula that its use became general.

As to the extent which bleeding should be carried to in dysentery, no general rules can be given, since this must be regulated rather by its effects on the pulse than by quantity; and in fact it sometimes happens that so little fever attends, that bleeding is unnecessary. In violent cases bleeding ad deliquium should be had recourse to, since, as in all other complaints characterized by increased vascular action, the suddenness with which we abstract blood is of great importance.

As the fæces are retained notwithstanding the urgency

for evacuation, purgatives may be administered. They are admissible only with much restriction. Castor oil seems the only purgative which can be prescribed with safety, since most others in common use irritate the nervous expansion of the bowels, and in even the morbid contractions. This oil is said indeed to sheathe the nerves, by its lubricity, from the irritating secretions, while it produces natural and general secretion. Clysters have been recommended; but the stimulus of distention is of all other stimuli the most irritating to the diseased intestine. Moreover they do not reach to those points where the establishment of secretion would be a desirable matter; and consequently little good can be expected from them.

It has been urged by Dr. J. Johnson, that we should not be obedient to every call of nature, the straining which ensues being highly detrimental, and augmenting, in many cases, the discharge of blood. Every motion of the body indeed, increases the desire to evacuate. As little or nothing, except mucus and blood, comes away in four efforts out of five, we should therefore endeavour to stifle the inclination to stool; and we shall often succeed; for the tormina go off in a few minutes, and by those means we elude not only the straining, but the painful tenesmus which continues so long after every fruitless attempt at evacuation. This circumstance, though apparently of a trifling nature, Dr. J. thinks of considerable importance, though it has seldom been attended to. It has the sanction of antiquity, however, as may be seen in the following precept of Celsus: "*Et cum in omni fluxu ventris, tum in hoc precipue necessarium est, non quoties libet desiderare, sed quoties necesse est; ut hæc ipsa mora in consuetudinem ferendi oneris intestina deducat.*"

Diaphoretics are of course to be used, and the secretions of the skin encouraged by the warm bath; but this is by no means an easy task, since, independently of the uncertain operation of these remedies, the perspiration is liable to frequent checks on account of the patient's frequently rising from bed to evacuate his bowels. The painful contractions of the bowels are best allayed by opium. A small pill may be introduced into the rectum; or it may be given in the form of the pulv. ipecac. comp. in which combination its effects are also beneficially exerted on the skin.

The action of the secreting vessels is altered by mercurial medicines; calomel in large and frequently-repeated doses being indeed our principal dependence in this complaint. The *modus operandi* of this medicine is by no means generally understood. Those who have used it most successfully assert indeed, that it corrects the condition of the liver by emulging its ducts, unloading its congested or over-gorged vessels, removing undue determinations of blood to its yielding texture, prompting the healthy secretion of its peculiar fluid, and thereby resolves pyrexia. But all this is of course gratuitous assumption. The medicine may certainly stimulate the liver; but it is too much to assert that by so doing it cures dysentery, since it is seldom successful till pytalism is produced; and every one knows that the secretions of the liver may be corrected by mercury in very small doses. Mercury is said to equalize the circulation; but this appears an illogical proposition. If the assertors of this imply that it produces *general secretion*, and thus brings into action torpid secretions; it is a truism which cannot be questioned; but to speak of equalising circulation in any other manner implies that calomel affects morbid structures in one mode, and healthy ones in another; a notion which does not seem to have the least probability on its side. However this may be, mercury is the only medicine to be trusted to in dysentery; and it must be pushed to such an extent as to induce salivation. It may be given from doses of a few grains to that of one scruple three times a-day; and it is assisted by other medicines in conjunction: thus opium, ipecacuanha, and calomel, answer the desired end with less uncertainty than the separate exhibition of any single one.

The diet of the dysenteric patient should be very spa-

ring, and should consist of the least irritating substances, the various preparations of the farinacea, as sago, arrow-root, rice, &c. are alone admissible; but the less food of any kind that is taken in the beginning of the disease, the better. In chronic dysentery, where our principal effort must be directed to keeping the biliary secretion by gentle doses of calomel, and inducing regular action of the skin by diaphoretics, by flannels next the skin, and as much as possible by regulated temperature; the diet should consist of the same kind of substances as in the acute stage; and it is sometimes advisable to use astringents, as the kino, &c. A dish is recommended by Dr. J. Johnson, which he says the patients relish much: it consists of flour and milk boiled together, and rendered palatable with sugar and spice.

When the disorder is pretty well removed, gentle stimulation by the bitters and the mineral acids, particularly the nitric, must be had recourse to. At the same time we must guard against suffering the patient to indulge in too much food; for after this complaint the appetite is often greater than the powers of digestion, and its indulgence is sometimes followed by a relapse into the original disease, or other diseases, equally distressing and dangerous, are brought on.

The question concerning the *contagion* of dysentery will be discussed when we speak of the subject at full under the order PYRECTICA of this arrangement.

Genus. IX. *Diarrhœa*, [from *ῥέω*, to flow.] Flux, or Looseness. Generic characters—Alvine evacuations crude, loose, and too frequent: with little or no griping or tenesmus. There are six species.

1. *Diarrhœa fusca*. Fæces of common quality, but immoderately loose and copious.

2. *Diarrhœa biliosa*. Fæces loose, copious, and peculiarly yellow.

3. *Diarrhœa mucosa*. Dejections consisting of, or containing, a copious discharge of mucus. This is ascribed by Cullen to acrid ingesta, or taking cold, particularly in the feet. When produced by cold, it forms the *Catarrhus intestinorum* of various authors: the motions are acrid, often with but little bilious tinge, and the lower part of the rectum is excoriated, like the nostrils in a coryza.

4. *Diarrhœa chylosa*. The dejections milky or chyliform.

5. *Diarrhœa lienteria*. The dejections consisting of the aliment passed rapidly and with little change.

6. *Diarrhœa serosa*, the watery looseness, in which the dejections are almost entirely liquid. It is frequently metastatic, and still oftener produced by elaterium, or other drastic purgatives. Sometimes urinous, occasionally tinged with blood.

Diarrhœa is a leading and characteristic symptom in many disorders, both acute and chronic, general and local. This genus is to be distinguished from the foregoing by being generally without fever, and by the alvine evacuations consisting of the natural *fæculent* matter, though in a more liquid state; and by the absence of *tenesmus*, or violent bearing down, which attends *Dysentery*. There is also in the latter disorder more severe griping than in *Diarrhœa*: but this occasionally occurs in the *Diarrhœa*, and therefore is not a decisive distinction. There is, however, as we said before, a mutual alliance between the two diseases, which occasionally pass into each other; a *diarrhœa*, if neglected or improperly treated, sometimes being converted into *dysentery*; and a *dysentery*, when its worst symptoms have been subdued, sometimes leaving a *diarrhœa* behind.

The essential part of this disease, in all the species we have enumerated, consists in a preternatural increase of the peristaltic motion, and of the secretions, in the whole or a great part of the intestinal canal; and the predisposing cause of the disease is a peculiar irritability of the intestines, and of the secreting vessels which open upon their internal surface.

The several exciting causes of diarrhoea may be referred to two different classes. The first comprises disorders of certain parts of the body, which, either from a sympathy of the intestines with these parts, or from their connection with the system at large, occasion an increased action of the intestines, without the transference of any stimulant matter from the primary diseased part to them. Thus, the general sympathy of the intestines is often manifested in persons under the influence of certain passions of the mind, as anger, fear, and some others, which occasionally excite a diarrhoea. And among the diseases of other parts of the body, which affect the intestines, the irritation of dentition, in infants, may be mentioned as a familiar illustration, as it is seldom difficult and painful without occasioning diarrhoea. The sympathy between the skin and the bowels is particularly great in many individuals, so that a chill, or the application of cold and moisture, especially to the feet, will generally excite a diarrhoea: and the same sympathy is shown in others by the occurrence of diarrhoea from the suppression of cutaneous eruptions; or the stopping of profuse or habitual discharges from sores, &c.

The second class of occasional causes of the increased action of the intestines, consists of the stimuli which are applied directly to the intestines themselves; and these are of various kinds: They may be substances introduced by the mouth, as indigestible aliment, purges, &c. or poured into the intestines by the several excretories opening into them, as the secretions of the liver, &c.

Diarrhoea, when it occurs in fevers, is often a very unmanageable and dangerous symptom. After the measles it is often salutary; but in many instances it has proved more fatal than the disease itself, as is said to have been the case in the fatal epidemic measles in the island of St. Helena in the year 1807. Diarrhoea is one of the most common disorders attendant on difficult dentition in children: in fact, almost every irritation which excites feverishness in young children, is apt to occasion it. It is likewise a symptom of the presence of worms in the intestines. In the last stage of pulmonary consumption, a colliquative diarrhoea, which is liable to alternate with the colliquative sweats, is an almost universal occurrence.

The leading indications of the cure of diarrhoea will turn upon one or other of the following circumstances. Whether it appear to arise from, 1. a morbid irritability of the intestines; 2. a preternatural stimulus applied to them; or, 3. a combination of these two. The first indication will require the irritability to be allayed; the second, that the offending matter be expelled, or its acrimony corrected; and the third will demand a mixed plan, consisting of the other two, either jointly or alternately, together with an attention to the state of other functions and organs, which may affect that of the *primæ viæ*.

The means adapted to fulfil the *first* indication, or to allay the morbid irritability of the intestines, will consist in the administration of opiates. In most of the forms of diarrhoea, small doses of rhubarb are a good astringent. In the cases of *D. mucosa* or *D. lienaria*, especially when it has arisen from acrid purgation, constituting a hypercatarrhs, and in all instances of colliquative diarrhoea, the administration of opiates is particularly requisite. The vicarious discharge must be solicited to the skin by warm bathing and sudorifics; and, if disorganization is threatened, the use of calomel, as in dysentery, must be resorted to.

The means adapted to fulfil the *second* indication, of removing a preternatural stimulus from the intestines, consist in the administration of evacuants, or correctors of acrimony. Hence the use of emetics, of purgatives, of clysters, with the one view; and of mucilaginous diluents, alkalies, and absorbents, with the other.

The acrimony, which excites diarrhoea, especially in children, is most commonly of an acid nature, and is generated in the stomach during the imperfect digestion of

the food. Alkaline and absorbent medicines tend to neutralize it, and therefore to remove the irritation of this acrimonious cause of diarrhoea. Cordials and stimulants also are useful auxiliaries in removing such a diarrhoea.

When the *third* indication occurs; when there is, at the same time, a morbid irritability of the intestines, and an unusual stimulus applied to them, the latter must be removed or corrected, where that is practicable, by evacuants or other means, and the irritability moderated. Absorbents, such as preparations of chalk, testaceous powders, lime-water taken with milk, &c. will tend to correct any acid acrimony that may be formed in the canal; while gentle laxatives may be combined with them, such as rhubarb. These are principally indicated in cases of chronic diarrhoea, and in debilitated habits. A determination of the fluids to the skin, by diaphoretics, by warm-bathing, by restoring suppressed discharges, or substituting such as may be equivalent, by warm clothing, friction, and the exercise of gestation, will aid in fulfilling this indication; especially in cases where the occurrence of diarrhoea is obviously connected with the application of cold, the suppression of cutaneous excretions, or with a generally debilitated habit. This purpose is also more effectually accomplished, when a course of suitable diet is pursued at the same time; especially the use of milk, rice, the amylaceous parts of vegetables, such as arrow-root, tapioca, sago, &c. with animal broths and jellies. Dr. Heberden recommends the combination of spices with the vegetable mucilages, as the nutmeg, cinnamon, &c. or the combination of cretaceous medicines with spices and opiates. He also advises the use of a spoonful of mutton suet, dissolved in four ounces of warm milk, twice a-day, both as medicine and nutriment to a patient under chronic diarrhoea.

Dr. Good mentions a case of *D. serosa*, which occurred to himself in 1806. The patient was a young woman, aged twenty-four; the disorder had continued for ten years, and had never produced fewer than nine or ten watery stools a-day, sometimes tinged with blood. She was often in great spasmodic pain in the stomach or intestines; and had tried a long list of astringents, anodynes, and other medicines, to little purpose. She was much reduced; and it appeared to be a case of great local irritation from local debility. Gentle stimulants were here of essential service; and the disease gradually yielded to camphor mixture and pills of the resinous gums.

Diarrhoea is a common complaint among infants. The natural appearance of the stools is altered from the bright orange colour, pulpy and curdled consistence, and inoffensive smell; and they become green, slimy, and at the same time emit a sour smell, which arises from the prevalence of acidity in the first passages. The complaint is not often dangerous; it generally yields to a laxative composed of a little magnesia and rhubarb. But the nurse's food should be regulated; and the infant ought to have no other food, in addition to the milk, than arrow-root.

This complaint generally arises from exposure to cold, or from some irritation or accumulation in the bowels. The linen and stools are streaked with blood; and there is violent pain, or symptoms of fever. Where slimy stools are of the colour of clay, and emit a putrid smell, the infant soon becomes emaciated; and the disease often terminates fatally, though its progress be slow.

As the disorder proceeds, very unfavourable symptoms occur, such as emaciation and dryness of the skin, swelling or shrinking of the belly, with an altered appearance of the countenance; and there is a constant fretting or peevishness of temper. Swellings of the glands of the groin, and a little uneasiness of breathing, as if there were a slight tendency to cough, are also very unfavourable symptoms. In many of these cases the purging is the effect of a diseased state of some of the digestive organs, or of the mesenteric glands; but in others it arises from an irregular action of the former organs. The

continued.

continued use of alterative medicines, which maintain a steady but gentle action upon the alimentary canal, and the adjoining viscera, seems to be the most successful treatment. At the same time we must correct and modify their operation according to circumstances, and palliate urgent symptoms. The occasional use of injections of thin starch and laudanum, in the proportion of eight or ten drops of the latter to two table-spoonfuls of the former, may likewise be employed.

A severe and often fatal species of diarrhoea is known in Scotland by the name of the "weaning brash." It occurs after weaning a child too suddenly, especially at an unfavourable season, as the autumn. It commences sometimes two or three days after weaning, but frequently not for three or four weeks, with a purging and griping, and green stools. If this be neglected, the symptoms increase, retching and vomiting supervene, followed by a loathing of every kind of food, emaciation and softness of the flesh, restlessness, thirst, and fever of a hectic character. But the most characteristic symptom of this disease is a constant peevishness, the effect of unceasing griping pain, expressed by the whine of the child, but especially by the settled discontent of its features. In the progress of the disease, the evacuations from the belly show very different actions of the intestines, and great changes in the biliary secretion; for they are sometimes of a natural colour, at other times slimy and ash-coloured, and sometimes lienteric. The disease seldom proves fatal before the sixth or seventh week; but sometimes an earlier termination is suddenly produced by incessant vomiting and purging, or by convulsions, from the extreme irritation in the bowels.

On dissection, the intestinal canal, from the stomach downward, is found abounding with singular contractions, and has in its course one or more intussusceptions; the liver is firm, larger than natural, and of a bright-red colour; and the gall-bladder, which is enlarged, contains a dark-green bile. In some cases the mesenteric glands have been found swelled and inflamed; in others, however, scarcely enlarged, and having no appearance of inflammation. It is probable, therefore, that this disease is owing to the morbid state of the liver, and that the extremely irritable state of the whole abdominal viscera, marked by the spasmodic contractions and intussusceptions, &c. is occasioned by sympathetic irritation.

The diet should consist of eggs, the finer kind of light ship-biscuit, or arrow-root, custard, the juice of lean meat, plain animal jellies, broths freed from their oily part, and milk. The breast-milk might perhaps be restored with advantage. Vegetables of all sorts, particularly fruits, acids, and compositions of which sugar or butter form a part, and fermented liquors of every kind, should be strictly prohibited. The feet should be kept warm by woollen stockings, and flannel worn next the skin; and the warm bath and fomentations may be frequently used to alleviate the continual spasms. Small doses of calomel are however the most effectual remedy against the weaning brash, as against other chronic forms of bilious diarrhoea. We may generally give half a grain of calomel morning and evening, or a grain every night, for a week or ten days. After the third or fourth dose, there is generally a great change in the colour of the alvine discharge; it becomes of a dark mahogany-colour, and is in general more offensive. When this change takes place, it produces a favourable change in the disorder. Soon afterwards, the children become free from fever, more placid; and in a day or two more their appetite returns, with their former complexion, and every other demonstration of health.

Connected with diarrhoea, we have to notice a complaint of the bowels clearly described of late by Dr. Powell. Like the foregoing, it consists in a diseased secretion from the mucous lining of the alimentary canal; the matter evacuated being of a substantial form, and consisting of layers of coagulable lymph moulded into the form of the intestinal cavities. The same matter is

often formed towards the termination of dysentery, and Villermé (*Dict. des Sciences Médicales*) says, "I have had occasion to see great quantities of these adventitious membranes passed by stool, in the colic of Madrid. They were generally of a gelatinous consistence, and enveloped in mucus. One of these exhibited an exact mould of the intestine, being tubular, and some inches in length." In this case it is easily referred to throwing out of lymph, a consequence of inflammation. In the complaint in question, it does however follow inflammatory action. Indeed we meet with the same membranous substances in sedentary persons, especially females, who have languid and imperfect digestion, with a torpid state of the biliary and intestinal secretions. Here gelatinous concretions would appear to take place on the internal surface of the intestines, and even the hepatic ducts themselves, from mere remora of the fluids and want of energy in the secretory glands and organs. Sometimes these flakes are considerable; and, when developed in water, represent entire tubes broken off irregularly at the ends; which has led to the erroneous opinion that they were portions of the mucous membrane of the intestines.

The symptoms of this disease resemble very closely those which attend the passing of gall-stones; so much so, indeed, that Dr. Powell says, "Whenever violent pain takes place in the epigastric region of the abdomen, exacerbating in paroxysms accompanied by sickness, yellowness of the eyes and skin, and urine, by clay-coloured fæces, and without any proportionate increase of action in the circulation, biliary concretions are supposed to be forcing through the ducts; and, when these symptoms abate, it is inferred that their passage into the duodenum has been effected." In the case of biliary concretions, however, we naturally expect a repetition of attacks, and no very speedy termination of the patient's sufferings: on the contrary, the sort of attack here described is more insulated, and, when once it has passed, its recurrence is by no means equally to be dreaded as is that of the former.

In establishing his diagnosis more particularly, however, Dr. Powell directs the usual large pan to be filled with water, and the fæces to be stirred in it, after which the water has been left to rest long enough to ascertain whether the concretions, as they often do, have risen to the surface. This water he pours off; and repeated similar affusions are made, time being allowed for subsidence between each. The residue is then to be examined. This residue, in the cases to which the author refers, "has exhibited a large quantity of flakes, mostly turned into irregular shapes, and appearing to have formed parts of an extensive adventitious membrane of no great tenacity or firmness." In the first case that came under Dr. Powell's notice, this membrane was passed in perfect tubes, "some of them full half a yard in length, and certainly sufficient in quantity to have lined the whole intestinal canal." In the others also, the aggregate quantity has been very large, and continued to come away for many days, in irregular thin flakes, of but one or two inches in extent, and not perfectly tubular. Dr. P. has definitely examined four such cases, in all of which the leading symptoms led him to suspect the passage of biliary concretions at the time. They were all adult females. In but one of these our author had been consulted for previous ill health. "She had frequently suffered from occasional pain in the intestines, and derangement of her powers of digestion, with flatulence and a sense of suffocation. She was always relieved, at the time, by mild opening medicine, and believed herself able to prevent the attacks of pain from increasing to any serious degree of violence, by repeating it according to circumstances. A similar history of liability to frequent recurrence of pain, accompanied by indigestion, was related to me in the other instances. The more violent seizures under which I saw all the patients, consisted in a sudden and excessive pain in the epigastric region, increasing in paroxysms very frequently,

quently, rather relieved by pressure of the patient herself at the time, but leaving great soreness and tenderness during the intervals. This state continued under four days; during it the stomach was very irritable, and the tongue coated and clammy. Jaundice came on at an early period; and the stools were white, brown, or somewhat greenish, and streaked in colours, until the films began to pass, when they were mixed with a full sufficiency of bile, but not at first of a healthy colour. The pulse throughout was calm, moderate, and natural, in none of the instances amounting to 90." There was no indication of inflammation. In one instance Dr. Powell noticed a considerable hardness and contraction of the abdominal muscles; in another case there was superadded to the above symptoms a difficulty in passing the urine, with pain in the region of the bladder, requiring the use of the catheter.

The practice which appeared to Dr. P. most advantageous, was the steady use of a mixture of the infusion gentianæ compositum and infusion fennæ, with the addition of from ℥x. to ℥xx: of liquor potassæ, repeated so as to produce four or more stools in the twenty-four hours. Under its use the flakes first separated, and continued to do so in great abundance; the jaundice disappeared, and the patients recovered health and strength. During the paroxysms, the warm bath, warm fomentations, leeches, and blisters, are serviceable as external remedies; and internally, we should attempt to allay the pain and irritation, first by pretty large doses of opium and hyosciamus, and then acting on the bowels pretty briskly by compound extract of colocynth, calomel, and hyosciamus, aided by purgative enemata to solicit the peristaltic action. The recurrence of these distressing attacks can only be prevented by regulating the state of the bowels, and by correcting the depraved secretions themselves. This is to be done by strict regimen, great attention to the functions of the skin, and by such remedies as act on the biliary secretion. In conjunction with those measures, a steady perseverance in the use of the nitromuriatic acid bath has been used in obstinate cases with success.

Genus X. Cholera; [supposed by Celsus to be derived from *χολη*, bile, and *ῥεω*, to flow, (literary *bile-flux*;) but Trallian traces it from *χολας*, an intestine, and *ῥεω*, (literally *bowel-flux*;) a derivation which agrees better with the phenomena of the disease.] Purging and Vomiting; wind and cramp in the stomach and bowels.

The cause of cholera is, as we have before hinted, referrible, in common with dysentery, to a disturbed state of circulation, induced in the first instance by inaction and constriction of the vessels of the skin, and thereby communicating a plethoric state to the abdominal viscera. In cholera, however, the disease affects more severely the liver and superior part of the alimentary canal, and the lower bowels seem influenced but in a minor degree. In mild cases, the plethoric state of the liver unloads by secretion, and the bile is evacuated by vomiting and purging. In cases of extreme violence, however, no such effect takes place; and hence the old authors seem to have fallen into a great error in attributing cholera to increased secretion of bile: for, as the colonial practitioners have well shown, a copious flow of this secretion is rather to be considered as salutary or critical than indicative of the disease in question. We have three species of this genus.

1. Cholera vulgaris, or Cholera morbus. Specific character—Vomiting and purging frequent and copious. The following excellent description of this disease is copied from Sydenham. He says, "Malum ipsum facile cognoscitur, adfunt enim vomitus enormes, ac pravorum humorum cum maxima difficultate et angustia per alvum dejection; cardialgia, sitis. Pulsus celer ac frequens, cum æstu et anxietate, non raro etiam parvus et inæqualis, insuper et nausea molestissima, sudor interdum diaphoreticus, crurum et brachiorum contractura, animi deli-

quium, partium extremarum frigiditas, cum aliis notæ symptomatibus, quæ adstantes magnopere perterrefaciunt, atque etiam angusto viginti quatuor horarum spatium ægrum interimant." The practitioners who followed Sydenham described the disease as attended from the first by *bilious* vomiting; but later writers deny this. And that close observer of nature, Aretæus, says, "In primis quæ evomuntur, aquæ similia sunt; quæ anus effundit, stercorea, liquida, tetrique odoris sentiuntur. Siquidem longa cruditas id malum excitavit, quo si per clysterem eluanter, primo pituitosa, mox biliosa feruntur."

2. Cholera flatulenta, windy or dry cholera. The vomiting and purging rare or absent; great and oppressive flatulence; retching; flatulent dejections and eructations. Sydenham says, that in the epidemic cholera of 1669 he met with but a single instance of the dry or flatulent species. It seems, indeed, a disease of rare occurrence, and the discriminating symptom, *flatulence*, is probably owing to the nature of the swallowed food.

3. Cholera spasmodica, Indian cholera; emphatically called "mort de chien." The dejections watery; ineffectual retching; spasms successive and violent, commencing in the thoracic and abdominal muscles. We copy the ample account of the symptoms of this dreadful malady from the authentic Reports on the Epidemic Cholera which raged throughout Hindostan and the peninsula of India, in 1817, 18, and 19; published under the authority of the Bombay government.

"The attack was generally ushered in by a sense of weakness, trembling, giddiness, nausea, violent retching, vomiting, and purging, of a watery, starchy, whey-coloured or greenish, fluid. These symptoms were accompanied or quickly followed by severe cramps, generally beginning in the fingers and toes, and thence extending to the wrists and fore-arms, calves of the legs, thighs, abdomen, and lower part of the thorax. These were soon succeeded by pain, constriction, and oppression of stomach and pericardium; great sense of internal heat; inordinate thirst, and incessant calls for cold water, which was no sooner swallowed than rejected, together with a quantity of phlegm, or whitish fluid, like seedings of oatmeal. The action of the heart and arteries now nearly ceased; the pulse either became altogether imperceptible at the wrists and temples, or so weak as to give to the finger only an indistinct feeling of fluttering. The respiration was laborious and hurried, sometimes with long and frequently-broken inspirations. The skin grew cold, clammy, covered with large drops of sweat; dank and disagreeable to the feel, and discoloured of a bluish, purple, or livid, hue. There was great and sudden prostration of strength, anguish, and agitation. The countenance became collapsed; the eyes suffused, fixed and glassy, or heavy and dull; sunk in their sockets, and surrounded by dark circles; the cheeks and lips livid and bloodless; and the whole surface of the body nearly devoid of feeling. In feeble habits, where the attack was exceedingly violent, and unresisted by medicine, the scene was soon closed. The circulation and animal heat never returned; the vomiting and purging continued, with thirst and restlessness; the patient became delirious or insensible, with his eyes fixed in a vacant stare, and sunk down in the bed; the spasms increased, generally within four or five hours.

"The disease, sometimes at once, and as if it were momentarily, seized persons in perfect health; at other times, those who had been debilitated by previous bodily ailment; and individuals in the latter predicament generally sunk under the attack. Sometimes the stomach and bowels were disordered for some days before the attack, which would then, in a moment, come on in full force, and speedily reduce the patients to extremities.

"Such was the general appearance of the disease where it cut off the patient in its earlier stages. The primary symptoms, however, in many cases, admitted of considerable variety. Sometimes the sickness and looseness were

preceded by spasms; sometimes the patient sunk at once, after passing off a small quantity of colourless fluid, by vomiting and stool. The matter vomited in the early stages was, in most cases, colourless or milky; sometimes it was green. In like manner, the dejections were usually watery and muddy; sometimes red and bloody; and, in a few cases, they consisted of a greenish pulp, like half-digested vegetables. In no instance was feculent matter passed in the commencement of the disease. The cramps usually began in the extremities, and thence gradually crept to the trunk; sometimes they were simultaneous in both; and sometimes the order of succession was reversed; the abdomen being first affected, and then the hands and feet. These spasms hardly amounted to general convulsion. They seemed rather affections of individual muscles, and of particular sets of fibres of those muscles, causing thrilling and quivering in the affected parts, like the flesh of crimped salmon; and firmly stiffening and contorting the toes and fingers. The patient always complained of pain across the belly, which was generally painful to the touch, and sometimes hard and drawn back towards the spine. The burning sensation in the stomach and bowels was always present; and at times extended along the cardia and œsophagus to the throat. The powers of voluntary motion were, in every instance, impaired; and the mind obscured. The patient staggered like a drunken man, or fell down like a helpless child. Head-ach over one or both eyes sometimes, but rarely, occurred. The pulse, when to be felt, was generally regular, and extremely feeble, sometimes soft; not very quick; usually ranging from 80 to 100. In a few instances, it rose to 140 or 150 shortly before death. Then it was indistinct, small, feeble, and irregular. Sometimes very rapid, then slow for one or two beats. The mouth was hot and dry; the tongue parched, and deeply furred, white, yellow, red, or brown. The urine at first generally limpid, and freely passed; sometimes scanty, with such difficulty as almost to amount to strangury; and sometimes hardly secreted in any quantity, as if the kidneys had ceased to perform their office. In a few cases, the hands were tremulous; in others, the patient declared himself free from pain and uneasiness, when want of pulse, cold skin, and anxiety of features, portended speedy death. The cramp was invariably increased upon moving.

"Where the strength of the patient's constitution, or of the curative means administered, were, although inadequate wholly to subdue the disease, sufficient to resist the violence of its onset, nature made various efforts to rally; and held out strong, but fallacious, promises of returning health. In such cases, the heat was sometimes wholly, at others partially, restored; the chest and abdomen in the latter case becoming warm, whilst the limbs kept deadly cold. The pulse would return; grow moderate and full; the vomiting and cramps disappear; the nausea diminish, and the stools become green, pitchy, and even feculent; and with all these favourable appearances, the patient would suddenly relapse; chills, hiccup, want of sleep and anxiety, would arise; the vomiting, oppression, and insensibility, return; and in a few hours terminate in death.

"When the disorder ran its full course, the following appearances presented themselves. What may be termed the cold stage, or the state of collapse, usually lasted from twenty-four to forty-eight hours, and was seldom of more than three complete days' duration. Throughout the first twenty-four hours, nearly all the symptoms of deadly oppression, the cold skin, feeble pulse, vomiting and purging, cramps, thirst, and anguish, continued undiminished. When the system shewed symptoms of revival, the vital powers began to rally, the circulation and heat to be restored; and the spasms and sickness to be considerably diminished. The warmth gradually returned; the pulse rose in strength and fullness, and then became sharp, and sometimes hard. The tongue grew more deeply furred; the thirst continued, with less nau-

sea. The stools were no longer like water; they became first brown and watery; then dark, black, and pitchy; and the bowels, during many days, continued to discharge immense loads of vitiated bile, until, with returning health, the secretion of the liver and other viscera gradually put on a natural appearance. The fever, which invariably attended this second stage of the disease, may be considered to have been rather the result of nature's effort to recover herself from the rude shock which she had sustained, than as forming any integrant and necessary part of the disorder itself. It partook much of the nature of the common bilious attacks prevalent in these latitudes. There was the hot dry skin; foul, deeply-furred, dry, tongue; parched mouth; sick stomach; depraved secretions; and quick variable pulse; sometimes with stupor, delirium, and other marked affections of the brain. When the disorder proved fatal after reaching this stage, the tongue, from being cream-coloured, grew brown, and sometimes dark, hard, and more deeply furred; the teeth and lips were covered with fordes; the state of the skin varied; chills, alternating with flushes of heat; the pulse became weak and tremulous; catching of the breath; great restlessness, and deep moaning, succeeded; and the patient soon sunk, insensible, under the debilitating effects of frequent dark pitchy alvine discharges.

"Of those who died, it was believed, perhaps rather fancifully, that the bodies sooner underwent putrefaction than those of persons dying under the ordinary circumstances of mortality. The bodies of those who had sunk in the earlier stages of the malady, exhibited hardly any unhealthy appearance. Even in them, however, it was observed, that the intestines were paler, and more distended with air, than usual; and that the abdomen, upon being laid open, emitted a peculiar offensive odour, wholly different from the usual smell of dead subjects. In the bodies of those who had lived some time after the commencement of the attack, the stomach was generally of natural appearance externally. The colour of the intestines varied from deep rose to a dark hue, according as the increased vascular action had been arterial or venous. The stomach, on being cut into, was found filled, sometimes with a transparent, a green, or dark, flaky, fluid. On removing this, its internal coats, in some cases, were perfectly healthy; in others, and more generally, they were crossed by streaks of a deep red, interspersed with spots of inflammation, made up of tissues of enlarged vessels. This appearance was frequently continued to the duodenum. In a very few cases, the whole internal surface of the stomach was covered with coagulable lymph; on removing which, a bloody gelatine was found laid on the interior coat, in ridges or elevated streaks. The large intestine was sometimes filled with muddy fluid, sometimes livid, with dark bile, like tar; just as the individual had died in the earlier or later periods of the attack. In most cases, the liver was enlarged, and gorged with blood. In a few, it was large, soft, light-coloured, with greyish spots, and not very turgid. In others again, it was collapsed and flaccid. The gall-bladder was, without exception, full of dark-green or black bile. The spleen and thoracic viscera were, in general, healthy. The great venous vessels were usually gorged; and, in one case, the left ventricle of the heart was extremely turgid. The brain was generally of natural appearance. In one or two instances, lymph was effused between its membranes, near the coronal suture, so as to cause extensive adhesions; in other cases, the sinuses, and the veins leading to them, were stuffed with very dark blood."

The treatment of cholera in each species will be founded on the same general principles; viz. to restore to the skin and external parts the balance of action by means of very-hot baths, diaphoretics, urtication, &c. to remove the plethora of the system, and especially of the portal system, by active bleeding; and to promote secretion by mercurial remedies. The combating of particular symptoms, which is an indispensable task, will require us to administer opium for the allaying of spasm and nervous

nervous irritation, and to give emetics to provoke, or effervescent medicines to restrain, vomiting; and so on. In our country the cure of cholera may, in general, be effected by diaphoretics, as the pulv. Doveri. comp. small and frequently-repeated doses of colomel, the warm bath, cold drinks, and abstinence; after which, columbo and other stimulants of the stomach may be used to perfect the approaches to health.

In the Cholera spasmodica we have however a much more terrible malady to contend with. In the Report we have just quoted, we are told that "the centre-division of the army, under the commander-in-chief, exhibited an awful specimen of the fatality of the disease. It consisted of less than 10,000 fighting men; and the deaths, within twelve days, amounted, at the very lowest estimate, to 3000; according to others, to 5, and even 8000!" The dread of a mortality so great will, no doubt, stimulate us to use the measures commonly successful with the utmost care and promptness; and, considering the immense body of information which we have received from the surgeons who witnessed the ravages of the disease in the vast populations of either Ind, we can have little hesitation in establishing therapeutical dogmas.

A measure which strikes at the fons and origo mali is bleeding. This should be at once carried ad deliquium animi, and should form the first part of the treatment. The alleviation of pain, the restoration of the biliary secretion and of the perspiration, must be attempted by large doses of calomel, varying from a few grains to a scruple, and combined with opium. Antimony being scarcely ever retained on the stomach, the sickness is to be moderated by clysters composed of aqueous solutions of opium, since even the latter substance, in a solid form, is rejected when given by the mouth. Mr. J. Boyle (Treatise on the Epidemic Cholera of India, 1821.) is of opinion, however, that sickness should by no means be checked. He says, "The constant nausea and irritation of stomach, which is observable in the early stages of this complaint, without full or violent vomiting, simply spouting up, as it were, any thing swallowed; the obstruction of the biliary ducts observed in dissection, and a general want of success in practice; induced me to embrace ideas perfectly new on the subject. The obstruction of the biliary ducts I looked on as a source of irritation to the nervous system generally, and the nausea and sickness of stomach as an effort of nature to free herself of an unaccustomed evil. In accounting for the causes of this disease, it has been observed, and with great justice, that when, from the exertions to vomit, bile makes its appearance, a favourable prognosis may be formed. Now, if the appearance of bile be a salutary one, (and it certainly is,) why not favour the progress of its formation, instead of obstructing its passage by the administration of sedatives? We know of nothing which will increase the secretion of bile so quickly or so effectually as the act of vomiting; we also know the sympathy which subsists between the liver and stomach, and that derangement of either organ will more or less affect both. It is evident, then, that the gastric derangement peculiar to this disease, is not only indicative of the existence of lurking mischief, but directly points to the treatment. Further, of all the cases of which I have seen or heard, there was not one fatal termination after bile had, in any way, or by any means, made its appearance."

The diaphoretics which the Indian practitioners give are often of a highly-stimulating nature; as arrack-punch, &c. but these should not be used till the plethora and consequent cerebral disturbance, which in some cases is dreadfully violent, is subdued by venesection. In using the bath, we should be careful to employ it hot; for it is established on good authority, that, till the temperature is raised to an unpleasant height, no good is derived from it.

The convalescents of cholera should be subjected to the

influence of the nitric-acid bath; and the acid internally administered likewise forms a cooling palatable drink, which tends to restore the tone of the alimentary canal, and improves the secretion of the liver.

With regard to the contagious nature of this complaint, the reader is referred to PYREXICA.

Genus XI. *Enterolithus*, [from *εντερον*, bowel, and *λιθος*, stone.] Stony concretions in the stomach and bowels.

For the information under this head we are wholly indebted to Dr. Macon Good; as no other system contains a similar genus. We have therefore no synonymes to put down. Dr. Good very justly observes, that "almost all animals are endued with a power of separating or secreting lime and other earths from the blood for particular purposes; as that of forming a shell covering in insects and worms, and of giving hardness to the bones in all other animals. Under a morbid action of single organs, or of the system generally, this is often secreted in an undue quantity, and poured forth into cavities where its accumulation and crystallization must be attended with mischief. Such, at times, is the case in respect to the stomach and intestines. But, independently of concretions derived from this source, we often meet with others produced by an agglutination or crystallization of the juices which are contained in the aliment, and which, not unfrequently, give immediate proof of their origin by the aromatic taste, smell, or other qualities, which such concretions exhibit. There is also a third kind of concretion occasionally to be traced in the intestinal canal, of a softer structure, and cetaceous or saponaceous feel, which appears to be produced by a peculiar combination of the materials of the fæces, and constitute proper *scybalæ*, although this term has not unfrequently been employed to signify portions of common fæces or stercoraceous matter in an indurated state." Thus, then, we have three species.

1. *Enterolithus bezoardus*, the intestinal bezoar: in concentric layers closely agglutinated or crystallized; capable of a fine polish; frequently with a metallic lustre on the surface of each layer; and an accidental nucleus in the centre: of a spheroidal figure; chiefly consisting of vegetable matter. It is said, (though not proved) to be found in the human stomach; but more commonly in that of the smaller ruminating quadrupeds, as the goat and antelope, particularly the beautiful and elegant species of antelope denominated *gazal* by the Arabians and Persians, and *tsibi* by the Hebrew poets; the *ahu* of the Turks; the Antelope gazella of Linnæus. It was formerly employed as a febrifuge and alexipharmic in medicine; and worn as an amulet by the superstitious, who have sometimes purchased a single one at six thousand livres when very fine, and hired them in Holland and Portugal on particular occasions at a ducat a-day. See the article BEZOAR, vol. iii.

2. *Enterolithus calculus*, intestinal calculus: radiating from a common centre, or formed in concentric layers; mostly with an accidental nucleus; more or less porous; spheroidal or oblong; admitting an imperfect polish; composed chiefly of earths and animal matter. This species, Dr. Good says, is by no means unfrequently found in the human stomach and intestines; but far oftener in the digestive channel of other animals, and particularly in the larger ruminating quadrupeds, or those with a long complicated digestive organ, where the food, as in the formation of bezoars, is slowly carried forward; and in tardy draught-horses, particularly those of millers, which are fed largely on bran, which seems to yield a ready basis for these concretions. See Phil. Trans. xxiv. 1705. xlv. 1746. xlviii. 1754. In the last case, the disease had existed for years: the animal died aged twenty-two, nearly foaling; but gave no sign of pain or inconvenience till three months before her death. The calculus weighed 15 lb. 12 oz. average diameter $8\frac{1}{2}$ inches by 8 inches. When chemically analyzed, they are chiefly found to consist

consist of a triple or ammoniaco-magnesian phosphate; like the earthy or white-sand calculi of the human bladder; though it is difficult to conceive from what quarter the magnesia is obtained. In the case of millers' horses, some portion of this earth may be derived from the bran, in which it is always to be traced; but the difficulty still remains with respect to other animals. The figure, whatever be the size of the calculus, is usually spheroidal, except where broken into separate fragments: the matter is deposited for the most part, as in the former species, upon a nucleus of some sort or other, as a small piece of flint, an iron nail, a seed or husk, a piece of hay or straw; the structure sometimes radiating from such common centre to the surface, and sometimes evincing distinct plates more or less united to each other. In the human subject, these calculi vary from the size of a pea to that of a filbert, chestnut, or hen's egg, and are often still larger. In the case of Margaret Lower (see p. 151.) they were usually of the two former sizes, and appear to have been formed in great abundance and with wonderful facility; for her abdomen, upon pressing it, often rattled from the quantity it contained, with the sound of a bag of marbles. Many of these were rough and sharp-pointed at the edge, evidently fragments or nodules of larger concretions, and gave great pain in the rejection, whether above or below, for they were discharged both ways. The larger-sized weighed rather more than two drams; and Dr. König, who relates the case, calculated that the whole that were discharged during the continuance of the complaint could not amount to less than 5 lb. avoirdupois. In a case related by Mr. Martineau, (Phil. Transf. vol. xxxii. 1723.) five calculi, some of them much larger than the preceding, were voided per anum, by a poor woman in the third month of pregnancy, after having suffered from colic about four or five days: of these, the largest, 8 inches in circumference and $6\frac{5}{8}$ in length, weighed two ounces sixteen pennyweights and twelve grains. In this case, and in various others, the calculi seem to have been in the intestines for a considerable period of time without inconvenience; for it is hardly possible to conceive that all these should have been produced in the course of a week. In another case in the same journal, vol. xli. 1740, related by M. Mackarness, a calculus of this kind was extracted with some difficulty from the anus by the surgeon who attended, which weighed $8\frac{1}{2}$ oz. and was $10\frac{1}{2}$ inches in circumference. It is described as "a hard unequal ragged flinty stone," but was not examined chemically. There is some doubt whether this had not forced its way from the bladder into the rectum; but there is little doubt that it had been present in one organ or other, and nearly of its full size, for several years before its extraction; for the patient's stools were obtained with difficulty; and "three children, which she had successively borne in the three preceding years, were all marked with a large hollow or indentation in some part of the head, in one instance of sufficient extent to hold the moiety of a small orange!"

3. Enterolithus scybala, concretions resembling indurated feces: soapy or unctuous; mostly continuous; sometimes in layers; spheroidal or oblong; varying in colour; consisting chiefly of mucous and oleaginous matter.

"This species," says Dr. Good, "has not hitherto received the degree of attention to which it is entitled; and even Fourcroy and Walther seem to have mistaken it for a biliary calculus. The specific character is drawn up from various instances that have occurred to the writer, or have been shown him by others. A laminated scybalum, taken from the feces of a woman who had long been suffering from costiveness and abdominal pain, an inch and a half in length, and nearly two inches in circumference, of an oblong irregular shape, and reddish brown colour, was lately presented to a medical meeting in this metropolis as a biliary calculus, the donor expressing his astonishment that it could by any means be protruded

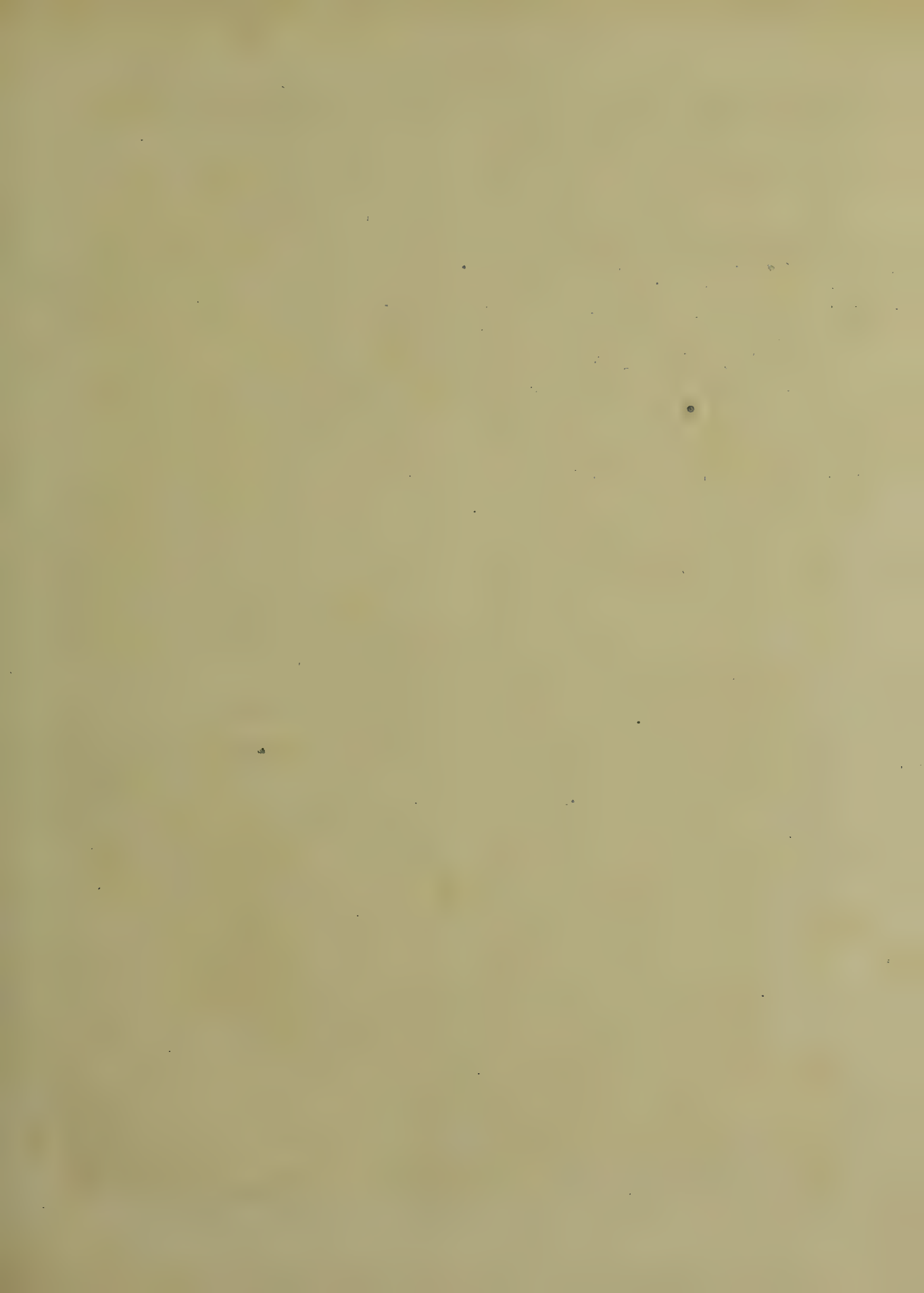
through the ductus communis. It had neither the specific levity, nor the peculiar bitter, nor the resinous stratification, of gall-stones; and there can be little doubt that it was formed in the intestinal canal."

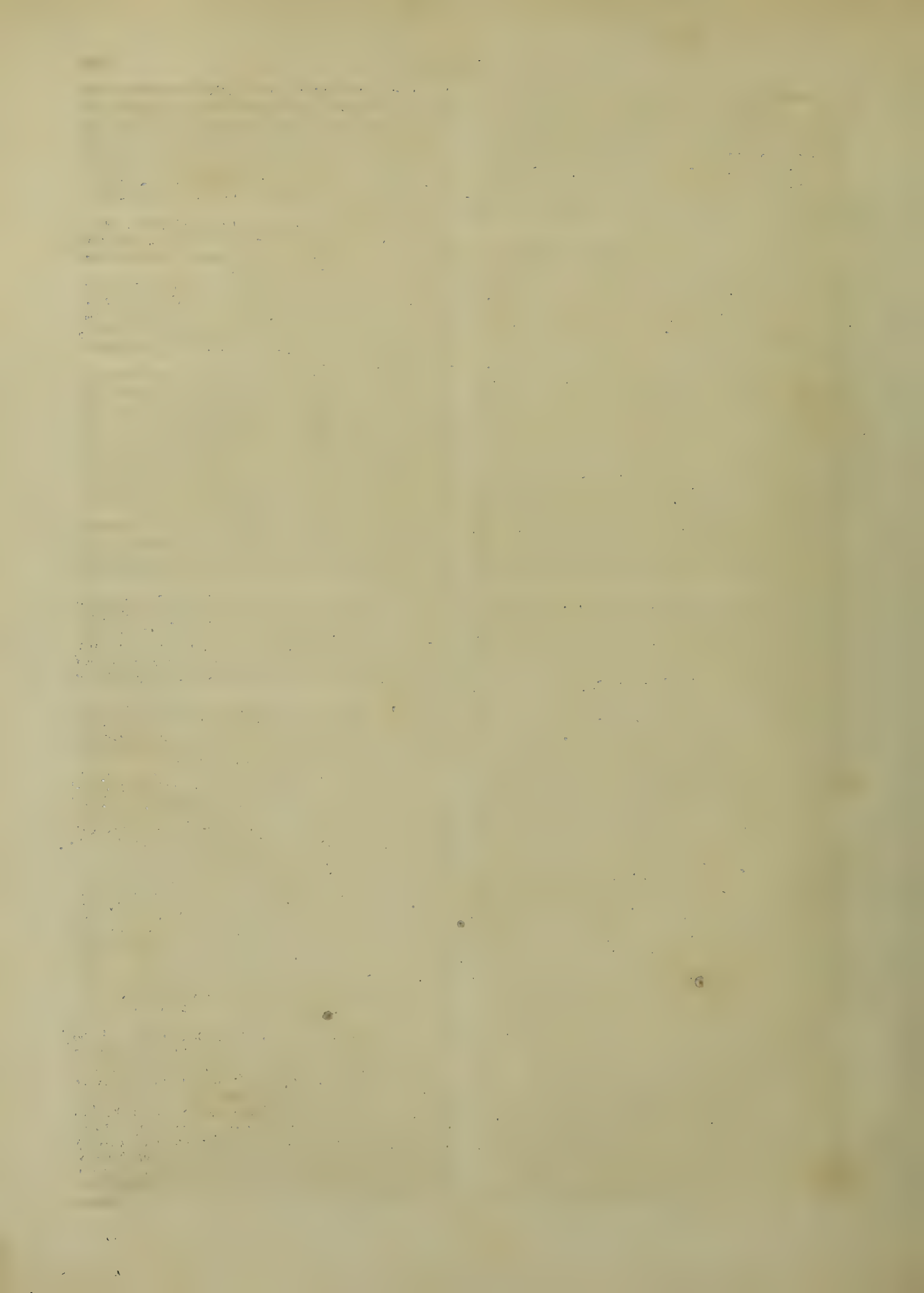
In sir Everard Home's paper On the Formation of Fat in the Intestines of living Animals, Phil. Transf. for 1813, a variety of ingenious facts and experiments are advanced to show the mode in which scybala are formed in the alvine passage, the component parts of which sir Everard supposes to be fat or oil, and mucus. The same paper contains, in support of this opinion, two interesting cases by Dr. Babington: the one that of a lady, who, upon taking olive-oil, constantly voided a number of globular concretions, "varying in size from that of a small pea to the bulk of a moderate grape, of a cream colour and slightly translucent, of a sufficient confidence to preserve their form and to bear being cut by a knife, like soft wax;" all which, like the scybalum above, had till this period been regarded as gall-stones: the second case that of a girl four years and a half old, who appears to have had a power of secreting oil in the intestines, and of discharging it per anum: "At three years old her mother observed something come from her as she walked across the room, which, when examined, was found to be fat in a liquid state, which concreted when cold. Ever since that time to the present she has voided at intervals of ten or fourteen days the quantity of from one to three ounces, sometimes pure, at others mixed with feces: when voided, it has an unusually yellow tinge, and is quite fluid like oil. Her appetite is good, as well as her spirits, and her flesh firm: her belly rather tumid, but not hard; she is subject to occasional griping." The medical records furnish numerous instances of similar formations. In the Act. Nat. Cur. vol. iii. obs. 51. we have a case very similar to Dr. Babington's, of soapy or oleaginous globules excreted in a paroxysm of colic: "excreti globuli, quasi saponacei, cedente dolore hypochondriorum." So in the Edinb. Med. Comment. vol. iv. p. 335, we have a case from the pen of Mr. Scott, of various adipose masses dejected in a softened state.

Genus XII. [*Helminthia*, from ἑλμινς-θας, an intestinal worm.] Worms or larvæ of insects inhabiting the stomach or intestines.

The existence of worms or parasitic animals in the intestines of other living creatures, is to the physiologist an important subject of contemplation, inasmuch as, the question so long agitated concerning the spontaneous generation or external introduction of worms once settled, we should be enabled to obtain some clearer ideas on the nature of life. In the practice of medicine, however, we are not required to enter into this difficult question. It is enough for the pathologist to know that worms in the alimentary canal are to his fellow-creatures a source of annoyance and pain, by what signs to detect their presence, and to know likewise by what means they are to be expelled. The latter view may lead him to make some classification of the animals in question, simply however for the reason that it is necessary to vary the remedial agent according to the species or genus of the offending animal. The usual seat of worms is the alimentary canal; but they have been found in all parts of the body. Sennertus says, "Præter vermes intestinales, sunt et alii, omnes fere corporis partes incolentes, uti vermes dentales, gingivales, rhinarii, pulmonarii, cardiaci, sanguinari, urinarii, umbilicales; vermes in hepate, in saliva, &c." Sed hi omnes non nisi in statu morbo inveniuntur." And to this list we might add a hundred others. The alimentary canal appears however to be the only part in which the presence of worms can be detected by symptoms, or from which they can be expelled by medicine; so that we shall confine ourselves to the parasitic inhabitants of this cavity.

For an ample description of the various kinds of intestinal worms, with plates representing their external form and





and internal structure, the reader is referred to the article *HELMINTHOLOGY*, and to each tribe under its generic name; as *ASCARIS*, *HIRUDO*, *LUMBRICUS*, *TÆNIA*, &c. We shall therefore merely copy in this place, with a few additions, the classification of Dr. Good, which must be allowed on all hands to be sufficiently comprehensive for practical purposes; and which, at the same time, compresses the immense body of research from which it is composed into a very small space. The following are the three species and their varieties.

1. *Helminthia alvi*, or worms existing and finding a proper nidus in the stomach or alvine canal, chiefly of children and sickly adults; producing emaciation, a swelled hard belly, gnawing or pungent pain in the stomach, pale countenance, fetid breath, and irritation of the nostrils. Of this species of disease there are five varieties, occasioned by the different genera of worms whose names they bear.

a. *H. Ascaridis lumbricoidis*, commonly called the long round worm; by Dr. Baillie, *Lumbricus teres*. For its specific character, and a representation of it, see vol. ii. p. 251. The body is transparent, light yellow, with a faint line down the side; it is gregarious and vivacious, and, according to Brera, possesses much sensibility: is from twelve to fifteen inches long. It inhabits principally the intestines of thin persons, generally about the ileum, through the parietes of which it sometimes eats its way. It has been known to ascend into the stomach, and creep out of the mouth and nostrils; it occasionally travels to the rectum, and passes away at the anus. This animal, being possessed of a cutting sharp point, often causes pungent and rending pains, especially about the umbilical region. Colic and borborygmi are symptoms peculiar to it.

β. *H. Trichocephali hominis*, the long thread-worm; (*Trichurus vulgaris*, *Baillie*.) Body above slightly crenate, beneath smooth; finely striate on the fore-part: head obtuse, and furnished with a slender retractile proboscis; tail or thinner part twice as long as the thicker, terminating in a fine hair-like point; about two inches long; in colour resembles the maw-worm, or common ascaris: gregarious, and found chiefly in the intestines of sickly children; generally in the cæcum.

γ. *H. Tæniæ folii*, the long tape-worm: articulations long and narrow, with marginal pores by which it attaches itself to the intestines, one on each joint, generally alternate; ovaries arborescent: head with a terminal mouth surrounded with two rows of radiant hooks or holders; and a little below, on the flattened surface, four tuberculate orifices or suckers, two on each side: tail terminated by a femicircular joint without any aperture: from thirty to forty feet long, and has been found sixty. It inhabits the intestines of mankind, generally at the upper part. Is sometimes solitary, but commonly in considerable numbers. As the head of the *Tænia folium* is furnished with pointed fangs, it sometimes attaches itself with such force to the mucous membrane of the intestines, as to produce the most severe, and even deadly, symptoms, since the membrane is mangled, and inflammation, or even gangrene, may be the consequence. A singular symptom of this *tænia* is a frequent sense of tension or tightness in the nose. See *HELMINTHOLOGY*, vol. ix. p. 343-6.

δ. *H. Tæniæ vulgaris*, (*T. lata*, *Baillie*.) the broad tape-worm: articulations short and broad, with a pore in the centre of each joint, and stellate ovaries round them; body broader in the middle, and tapering towards both ends; head resembling the last, but narrower and smaller; tail ending in a rounded joint. Like the last, it inhabits the upper part of the intestines, from three to fifteen feet long; usually in families of three or four. The symptoms of *tænia* are pain in the belly, with a turning motion and weight in the side; occasional prickings or bitings in the region of the stomach; swelling of

the abdomen at intervals, with sense of coldness there; appetite enormous, while emaciation continues, with sense of increasing weakness; complexion livid; pupils unusually dilated; eyes suffused with tears; vertigo with nausea; vacillation of the legs, and sometimes convulsive tremblings of the whole body; occasional evacuation, per anum, of small substances resembling the seeds of the lemon or gourd, which are portions of the marginal papillæ of the worms.

ε. *H. Fasciolæ*, from the fluke, or gourd-worm. Body flattish, with an aperture or pore at the head, and generally another beneath: intestines flexuous: ovaries lateral: hermaphrodite, and oviparous.

2. *Helminthia podicis*, worms, or the larvæ of insects, existing, and finding a proper nidus, within the verge of the anus, exciting a troublesome local irritation, sometimes accompanied with tumour; frequently preventing sleep, and producing pain or faintness in the stomach. Here we have three varieties.

α. *H. Ascaridis vermicularis*, from the maw-worm, or thread-worm: head subulate, nodose, and divided into three vesicles, in the middle of each of which is an aperture by which it receives nourishment; skin at the sides of the body finely crenate or wrinkled; tail finely tapering, and terminating in a point; the female has a small punctiform aperture a little below the head, through which it receives nourishment. Gregarious; viviparous; about half an inch long; sometimes wanders into the intestines, and occasionally as high as the stomach.

β. *H. Scarabæi*, larvæ of several species of the beetle, as of the *S. nobilis*; *S. Schœfferi*, *S. volvens*, which, when out of the body, deposit their eggs in round balls of animal dung, which they roll up and bury with their hind feet.

γ. *H. Cæstri*; bots, or larvæ of the hæmorrhoidal breeze or gad-fly. Round; pale-green; tail obtusely truncate; head tapering; mouth horny, with two lips, and two recurved black claws on each side of the mouth. Found convoluted in the mucus and fæces of man, but far more frequently of other animals, and especially of the horse.

3. *Helminthia erratica*; worms introduced by accident, and without finding a proper habitation in the stomach or intestines: producing spasmodic colic with severe gripings; and occasionally vomiting or defection of blood. Of this species also we have three varieties.

α. *H. Gordii*, from the hair-worm. Found in soft stagnant waters: from four to six inches long, twisted into various knots and contortions: colour pale-brown, with dark extremities. This disease is most frequent among the peasants of Lapland; and was suspected by Linnæus, and has been since proved, or thought to be proved, by Dr. Montin, one of his most celebrated disciples, to be occasioned by their drinking the half-putrid water of stagnant marshes or ditches inhabited by the gordius. It is not known on the Lapland mountains. The gripings are often so violent, that the patient rolls and writhes on the ground in feverish agony than a woman in labour, and discharges bloody urine. After many hours, sometimes an entire day, the disorder terminates in a profuse ptialism that continues for a quarter of an hour. The Laplanders call the disease *ullen*, or *hotme*.

ε. *H. Hirudinis*, occasioned by various species of the leech. Swallowed along with the muddy and stagnant water they inhabit. Apparently both the medicinal and the horse leech have been thus found; but the exact species has not been sufficiently indicated. Sauvages, in his genus *Hæmatemesis*, quotes Galen, Schenck, and Wedel; but does not describe the species. Upon turning to Galen. iv. 411. D. the reader will find that he briefly adverts to the disease, and quotes from Aesclepiades and Apollonius the remedies that were employed in their respective days; but he does not characterise the

U u worm;

worm; and Dr. Lister, apparently without knowing that the subject had been touched on before, describes the case of a patient, who, after having "had about his stomach and right side a most exquisite and tormenting pain for at least four months, which many times threw him into horrors and chillness, ague-like, and was the sickest man," continues he, "I ever saw not to die," vomited up a worm of a dark-green colour, like a horse-leech, and spotted. From the puncture of the animal, or the violence of the retching, he brought up at the same time two pounds of coagulated blood: and had occasionally discharged blood downwards. The man imagined he drank it in pond-water during the preceding summer. The worm was dead when rejected, or at least when Dr. Lister saw it: four inches long, and three in its largest circumference; and is still farther described and drawn as having three small fins on each side near the head, with a forky, finny, transparent, and extensible, tail. *Phil. Transf.* 1681-2. No. 6.

One of the most extraordinary cases, among those entitled to attention, is related by Mr. Paisley in the Edinburgh Medical Essays, ii. art. 26. In this case there were two worms, whose heads he compares to that of the horse-leech, and which appear to have been tolerably quiescent in their growth, till the general system was disturbed by a wound on the breast, received by the patient in consequence of a duel, with the small sword. The general symptoms of this species of *Helminthia* appeared about the third day afterwards, and continued with many variations for several weeks, when the patient discharged inferiorly one of these worms, measuring a foot and a half in length, and an inch and a half in diameter, dead, but full of blood, and accompanied by a large dejection of grumous blood, "to appearance some pounds;" and not many weeks afterwards the other, still larger.—A worm, apparently similar, is stated by Dr. Bond of Philadelphia, 1754, to have been discharged downwards by a female patient of his, who had been long subject to an hepatic disease, which gradually changed to violent helminthic symptoms in the stomach. These, at length, suddenly vanished; and within twenty-four hours the worm was dejected, dead, and in two parts, the whole making twenty inches in length. The patient died soon after; and, on opening her, this worm appears to have worked its way, when small, into the liver by the course of the common duct, to have committed great depredation here, and afterwards, with considerable difficulty and dilation of the duct, to have travelled back again. Dr. Bond ventures to call it an *hepatic leech*; though he calculates its course as now stated. *London Med. Observ. and Inq.* i. 68.—Maroja, physician to Philip IV. of Spain, in his treatise *De Morbis Internis*, lib. iv. cap. 16, mentions the case of a patient who discharged a still larger dead round worm of the same monstrous kind, and died in the act of discharging it: its length was twenty fingers breadth; its rotundity equal to the size of a stout man's hand; full of blood, and had more than a pound and a half of blood taken from its inside.

γ. *H. Muscæ cibariæ*; larvæ of the pantry-fly. These seem chiefly to produce mischief while in the stomach, into which they may be taken with decayed cheese, as the eggs are sometimes deposited in it. See Dr. White's case, *Mem. Med. Soc. Lond.* vol. ii. The patient, aged thirty, was emaciated, of a fallow complexion; had gripings and tenderness of the abdomen; costiveness, rigors, and cold extremities. Took columbo-root, and occasionally calomel and other purgatives. In a month was better, and the appetite good. The next purgative brought away an immense number of pupæ, or chrysalid worms; some of which, being preserved, were transformed into four-winged insects, the *Muscæ cibariæ*. Mr. Church, to whose entomological skill these worms were confided, asserts that he once knew a child discharge

a larva of the caddy insect (*Phryganea grandis*); and that the *Phalæna pinguinalis* lives and is nourished in the stomach; and, after sustaining several metamorphoses, is thrown out, and proves its proper genus. See also Mr. Calderwood's case; *Edin. Med. Com.* ix. 223.

The symptoms of worms are as various and complicated as we should naturally expect to find them, when we take into consideration the multifiform effect of nervous irritation on all parts of the body. When speaking of the functional disturbances of the alimentary canal, we have endeavoured to show how the irritated extremities of the nervous expansion of the stomach and bowels will convey nervous irritation to every other organ, and after a time induce more important changes. The same reasoning will apply to the effect of worms, which are to the nerves irritants of extreme power. To describe, therefore, all the symptoms of worms, would be endless; and it would moreover be useless, since they may be simulated by every other nervous disorder. The only certain sign of their existence is their being seen in the stools; but in many this is not observed till their presence has produced much gastric and intestinal disturbance. According to professor Brera, in persons attacked by worms, the colour of the countenance is changed; it is sometimes red, then pale, or leaden-coloured. A half circle of azure appears under the eyes; they lose their vivacity, and are fixed and motionless with regard to surrounding objects; they are sad and dejected; the lower eye-lids swell, and the pupils are evidently dilated. At other times the eyelids are yellowish, and the same tint extends over the white of the eye. There are also insupportable itchings in the nostrils, with occasional hæmorrhage from the same parts; headache is frequent, especially after taking food; this is sometimes so violent as to produce delirium and phrenitis. The mouth is full of saliva, and exhales a fetid and verminous odour; there is grinding of the teeth; uneasy and agitated sleep, and great thirst. Sometimes somnambulism renders the patient timid. Fainting, vertigo, and tingling of the ears, augment the morbid state of the sufferer. The cough is dry and convulsive, sometimes stertorous, and even suffocating; respiration is difficult, and sometimes attended with hicough; speech is interrupted, and in some instances entirely suppressed. The mouth is frothy, and there is palpitation of the heart; the pulse is hard, frequent, rapid, and intermittent. The belly is tumid, and troubled with borborygmi; there are eructations, nausea, retching to vomit, and vomiting. At one time there is no appetite; at another it is so great, that the patient is compelled to take more food than ordinary. The belly swells, and is the seat of severe pains; there is a sense of pricking and tearing, which is not fixed, but wanders over the whole abdominal cavity; these sufferings are aggravated when the stomach is empty, and immediately cease on taking food. The bowels are sometimes relaxed, sometimes costive. The urine is crude and turbid; the excrements fetid; cardialgia afflicts the patient, and sometimes destroys him; the body is emaciated, though the patient eats much; and violent itching of the anus sometimes occasions fainting. At other times tenesmus aggravates the pains of these parts. Languor, anxiety, listlessness, and extravagance in conduct, discourse, and the intellectual functions, are observed in persons harassed with worms.

The professor has also seen pains of the joints, resembling arthritic rheumatism, resulting from worms. Weikard relates the case of a woman who was long harassed with headache, spasmodic affection of the eyes, vertigo, sub-apoplectic attacks, and occasionally temporary blindness. One day, feeling something in her nose, she extracted, with a hook, a living lumbricoides, and then three more. Some anthelmintic remedies now prescribed brought away seven worms per anum, when the woman was perfectly cured of her distressing complaints. Worms have

have been known to excite apoplexy in the brain, and nephritis, when situated in the bladder; in which case, *Producunt aliquando erectionem molestant penis.*

Itching of the nose, and dilatation of the pupil, are said to be the least equivocal sign of worms.

Upon the whole, we may suspect the presence of worms where irregular appetite and great disturbance of the nervous system are present, without any other marked cause of irritation, and unattended with alteration in the circulating powers. The irregularity and the complete remission of certain pains, and the deranged secretion of the bowels, will further assist the diagnosis. It is a good rule, however, in all anomalous and rare diseases, to enquire whether the patient has, or has had, any symptoms of worms, since even intermissions of the pulse, palpitations of the heart, syncope, vertigo, loss of speech, blindness, buzzing in the ears, mental dejection, restless sleep, hiccup, convulsions, epilepsy, and many other diseases, may be produced by these animals.

The treatment of worms comprises their expulsion in the first place, and secondly the prevention of their regeneration. For the former purpose, a numerous host of drugs have been recommended by various authors. We shall insert, from Prof. Brera, a catalogue raisonnée of the most approved anthelmintics.

Allium sativum, or garlic, has been proved by Rosenstein and Tissot to be capable of expelling worms, especially the tænia.

Artemisia sanctonica, or worm-feed, is well known to have considerable power over the lumbricoides particularly. The dose is from two grains to a drachm.

Asclepias Curassavica, or Curagoa swallow-wort, (the *Apocynum erectum*, folio oblongo, &c. of Sloane,) from its emetic quality called bastard or wild ipecacuanha, and by the negroes *red-head*, is a powerful vermifuge. See vol. ii. p. 256.

The bark of the bastard cabbage-tree (*Geoffrea inermis*) stands, according to Mr. Chamberlaine, among the first in the list of powerful vermifuges; (see vol. viii. p. 339, 40.) but even this, after an extensive trial, was given up by that gentleman on account of its uncertainty.

Jalap, probably from its disagreeable smell and nauseous taste, is a useful auxiliary, at least, to other anthelmintics.

Asafoetida has been often usefully employed in several diseases resulting from worms, particularly in the spasmodic class. It is sometimes combined with other medicines, as myrrh, the black oxyde of iron, calomel, &c. Asafoetida enemata are useful in the ascarides.

Oil, as closing all the spiracula of worms, is very inimical to these animals. The oil of walnuts has been particularly extolled; but Mr. Chamberlaine asserts that tænia will live for many hours in oil.

Camphor. Pringle long ago demonstrated the anthelmintic powers of camphor. The celebrated Moschati generally prefers it to other vermifuges. Half a drachm is dissolved in a pint of water, to which a drachm of gum arabic is added, and this mixture is given in spoonfuls; or injections of stronger solutions than the above are thrown up. The employment of camphor is also attended with this advantage, that it counteracts the predisposition to the further development of verminous seeds.

Tanacetum vulgare, the common tansy, has been long celebrated. Aloes, rhubarb, the gratiola officinalis, gamboge, chamomile, sulphuretted scammony, and other similar articles, are also remedies commonly used for the expulsion of worms. They are not spoken of singly, because these drastics are usually combined with other vermifuge remedies, vegetable or mineral.

Murias ammoniæ, combined with rhubarb or jalap, is considered by Black as a very efficacious vermifuge.

Iron, in consequence perhaps of its tonic powers, is a well-ascertained anthelmintic, tending both to destroy

worms, and prevent their subsequent generation. The sulphate of iron is considered to be the best preparation, as possessing the greatest astringent force, and being powerful in moderating excessive secretion of mucus in the bowels. To children, professor Brera gives it in doses of from two to ten grains; and to adults, in doses of half a drachm to a drachm. These are large doses. Its virtues are much enhanced by conjunction with cinchona, valerian, jalap, asafoetida, &c.

Mercury can have no specific effect against worms, since the labourers in the quicksilver-mines of Almada, in Spain, are peculiarly subject to worms, though these people absorb such enormous quantities of that mineral, that globules of mercury are evacuated with the stools. The same thing happens in the mines of Lydia, and in the laboratories of Chemnitz in Hungary. Besides this, Rosenstein has administered mercury in several cases, even to salivation, without being able to expel a single worm. Brera says, however, that mercury, given in the state of oxyde, acts on the solids as a powerful stimulant, since by its use the pulse acquires great force, and the secretions and excretions are augmented. In this way several of the oxydes of mercury have been very efficient in expelling worms, and in curing verminous affections. Among these, the submuriate of mercury is to be preferred. Ptyalism should never be produced in these cases.

Petroleum is famous at Montpellier against worms. Rosenstein, many years ago, related the case of a man who was delivered of a tænia by a dose of petroleum and oil of turpentine.

Tin has been considered vermifuge ever since the days of Paracelsus. But, as professor Brera properly observes, this method is objectionable on account of the danger of lead or arsenic being mixed with the tin. He himself saw the Colica pictonum, and paralysis of the lower extremities, produced by taking the filings of tin.

Towards the middle of the last century, Madame Nouffer's remedy against tænia excited considerable attention. The medicine was three drachms of the root of the male fern (*Polypodium felix mas*) in powder, mixed with four or six ounces of the distilled water of male fern, or lime-tree flowers, taken in the morning. The dose, of course, was graduated for children. Two hours after taking the powder, the patient is to swallow the following bolus: Take of calomel, and dry resin of Aleppo scammony, of each twelve grains; of gamboge five grains; form into a bolus with hyacinth confection. This, by the way, was a tolerably good vermifuge of itself, and doubtless contributed as much towards Mad. Nouffer's success as the fern-powder.

Dr. Bourdies, of Paris, has administered the following remedy with great success in both species of tænia: Pour a drachm of sulphuric ether into a glass of the decoction of male fern, which the patient is to take fasting; four or five minutes after, an injection of the same decoction, with two drachms of ether, is to be thrown up. One hour after, give two ounces of oleum ricini, and one ounce of the syrup of peach-blossoms. This treatment is to be continued for three days. The worm is commonly discharged but half organized. When the worm is in the stomach, success is certain; when in the intestines, the treatment, after some time, is repeated; then Dr. Bourdier prescribes an enema of decoction of fern and two drachms of sulphuric ether, immediately after the patient has swallowed the etherated potion.

The remedy of the celebrated Odier was no other than castor-oil. It both kills the worms and expels them. Adults should take three ounces of the oil, and children a tea-spoonful, several times a-day. Lelle advises that the oil be taken at bed-time, and ten grains of gamboge the next morning.

Dr. Coffin has known Fowler's solution destroy the tænia in several cases. Dr. Fisher, of Massachusetts, also observes, that the tænia may be destroyed by Fowler's solution.

solution. For this purpose the patient should take it two or three times a-day, in as large doses as the stomach will bear; and continue the use of it till the worms are destroyed.

Dr. Girdlestone, of Yarmouth, states in the 15th volume of the Medical and Physical Journal, that he has, for some time, prescribed the solutio mineralis in cases of tape-worm. "This medicine," he says, "with the use of purgatives, brings away larger portions than any purgative medicine without it. And I have found the solutio mineralis a most powerful destroyer of the ascaris lumbricoides."

Dr. Pollock, of Bengal, has stated that a number of cases of tænia were cured by decoction of pomegranate. "In some of these the tænia had acquired an enormous length; and in some of them it was received in tepid water, and lived for several hours after it was passed."

A remedy, however, of superior power to all these, and one which seems to act very generally on all kinds of worms, is the oil of turpentine in doses of from 3 vi to two ounces. It was first recommended by Chaubert, and since tried on an extended scale in this country, where it has met with a very favourable reception. Many objections are in force against this medicine. The first, an intolerable thirst that follows its use, and which it is improper to indulge by drinking: the second is, that its efficacy is destroyed by mixture, and hence it is next to impossible to administer a large dose of turpentine to children, who, in fact, form the majority of worm-patients. In conclusion, therefore, though we have thought proper to enumerate most anthelmintics which have obtained great repute, we must give a decided preference to the *Dolichos pruriens*, or cowhage, over all others. This plant was first introduced into this country by Mr. Chamberlaine. The parts used are the setæ, or hairy contents of the pod, (see *DOLICHOS*, vol. vi. p. 11.) which are, according to the above-mentioned author, to be mixed with honey or treacle, and thus formed into an electuary; or it may be compounded in the form of lozenges, in which state it becomes a very palatable remedy for refractory children. The action of this medicine is shown by Mr. Chamberlaine's experiments to be entirely mechanical, and exerted only on the body of the worms, the sharp spiculæ sticking into the animals in question and killing them, while the coats of the bowels are defended from the accident by their constant secretion, or firmer structure.

Of the electuary, made with cowhage and treacle, a tea-spoonful is in general found to be a sufficient dose for children, from infancy to the age of six or eight: from thence to fourteen, a desert-spoonful is found to answer well: and, for all above that age, a table-spoonful. Formerly Mr. C. thought it might be sufficient if taken once a-day, but experience has shown that it answers better when taken twice; viz. at night going to bed, and in the morning an hour before breakfast; and, though little or no previous medicine is necessary, yet it is generally found to operate more effectually where a gentle emetic (provided nothing forbids it) has been premised. The cowhage, after being begun upon, is to be continued for three or four days; after which, some brisk purgative, such as jalap, or infusion of senna, or in short whatever purging medicine is known to agree best with the patient, is to be taken; which will in general bring away the worms, if there be any. Afterwards the cowhage is to be continued as long as there may seem occasion; repeating the purgative at intervals of three or four days.

This medicine, excellent as it is, seems of late to have fallen into disuse in this country, where indeed the difficulty of procuring it genuine must have subjected its employers to frequent failures in its application. It is remarkable, however, that Mr. Chamberlaine, after thirty-five years very extensive trial of it, never had one case of failure sent to him, though he publicly courted their transmission, and though it was as extensively used as

highly extolled by the first physicians of the day. For our own parts, when the use of gentle purgatives fails to expel the worms, we strongly recommend the immediate exhibition of this medicine; a measure we may adopt without fear, since we are assured it acts mechanically, and cannot therefore do mischief even if its employment be ill-timed. Dr. Coffin, the American translator of Prof. Brera's work on verminous diseases, speaks highly in praise of this remedy.

After all that has been said respecting the safety of cowhage, and however inoffensive in general it may be, reason will dictate to us, that where the mucus of the stomach and intestines is abraded, or lessened, from any cause whatsoever; or where there is a tendency towards inflammation in any part of the intestinal canal; the exhibition of this medicine cannot be unattended with danger.

The first edition of Mr. Chamberlaine's "Practical Treatise on *Dolichos pruriens*" was published in 1784. A tenth edition appeared in 1812, in which he observes, "I shall not go so far as to say, in praise of this my favourite medicine, that I never knew it to fail; but I will say, that I have experienced more certain good effects, and fewer ill consequences, than from any other medicine given with the same intention; inasmuch, that I have, since I first began to exhibit the cowhage, had no occasion to look for any other vermifuge. My primary object continues to be, the introduction into common practice of an article which I have long experienced to be a safe and efficacious anthelmintic; nor have my endeavours been unattended with success, as the *Dolichos pruriens* is now for the first time introduced into the *Materia Medica* of the London Pharmacopœia, at the last reform of that book by the college, in the year 1809. It has been also received into the Pharmacopœia of the Dublin College of Physicians. In that of Edinburgh, it has stood as an official for several years."

When the worms have been expelled, the correction of the tone which has given rise to or has been produced by them, will require the application of those remedies and rules which are explicitly detailed under *Dyspepsia*, in this article.

Genus XIII. Proctica; [from *πρωκτος*, the fundament.] Pain or derangement about the anus and rectum, without primary inflammation. There are five species.

1. *Proctica simplex*, simple pain at the anus. The pain which arises occasionally in the anus is of a severe and spasmodic kind; is liable to remit, and is produced by the passage of large and indurated fæces; or is caused by sympathy with disorder of other parts, generally of the superior parts of the alimentary canal, less frequently of the urethra. Mild purgatives, warm fomentations, and, in severe cases, anal leeching, are the most appropriate remedies.

2. *Proctica callosa*, pain produced by, or accompanied with, a callous contraction of the rectum. The cause is usually, but not always, scirrhus, which is liable more-over to degenerate, as in other cases, into carcinoma. *Colica callosa* is also an occasional result. When this complaint does not arise from scirrhus, it may be considered of the same nature as *Colica callosa*, under which title we have detailed the treatment. When it arises from scirrhus, in which case it forms what is called the scirrhus-contracted rectum, therapeutical endeavours are of little avail. The origin of this complaint, as indeed of scirrhus altogether, is quite obscure. Mr. White considered at first that it was a consequence of simple stricture; but subsequent experience has induced him to alter his opinion. Mr. Copeland, in his excellent Treatise, thinks it may be caused by whatever produces inflammation or irritation of the inner membrane of the intestine; but neither is that opinion by any means well supported. The seat of this disease (different from what we usually observe in *Colica callosa*) is generally two or three inches above the outer sphincter; and there is often

1. The first part of the paper is devoted to a general discussion of the problem.

2. The second part is devoted to a detailed analysis of the case.

3. The third part is devoted to a discussion of the results and their implications.

4. The fourth part is devoted to a discussion of the conclusions.

5. The fifth part is devoted to a discussion of the future work.

6. The sixth part is devoted to a discussion of the references.

7. The seventh part is devoted to a discussion of the acknowledgments.

8. The eighth part is devoted to a discussion of the appendix.

9. The ninth part is devoted to a discussion of the bibliography.

10. The tenth part is devoted to a discussion of the index.

11. The eleventh part is devoted to a discussion of the conclusion.

12. The twelfth part is devoted to a discussion of the summary.

13. The thirteenth part is devoted to a discussion of the abstract.

14. The fourteenth part is devoted to a discussion of the introduction.

15. The fifteenth part is devoted to a discussion of the final remarks.

a found capacious portion of the bowel between the stricture and this sphincter, though in the advanced stages of the disease even this often becomes indurated. Indeed the scirrhus sometimes occupies nearly the whole cavity of the rectum; implicates in thickening and induration all its coats, particularly the muscular; and, after a time, abrasion or ulceration of its internal membrane takes place, attended by a serous, or thin and fanious, discharge. The severe sufferings of the patient during the progress of this dreadful malady, and its more rapid advance to a fatal termination, will help to distinguish it from other species of contraction, when it would be difficult sometimes to decide from mere local investigation.

In addition to these remarks, and the diagnostic signs we have drawn between this disease and simple stricture, when speaking of the latter disease, we copy, from Mr. White and Dr. Sherwin the following remarks. Along with the great and permanent pain about the sacrum, shooting down the thighs as before noticed, the burning heat and pain of the rectum, "the patient gradually experiences a difficulty in evacuating fæces of a thick consistence. As the passage becomes obstructed, the fæces acquire a thinner consistence, and the first complaint which he makes is of a looseness." On this paragraph of Dr. Sherwin, Mr. White remarks, that, "although it may be very true, that the disorder sometimes arrives at the above-mentioned stage before any application is made for relief, yet it does not follow from thence, that a diarrhoea is a primary symptom; because the history of cases clearly demonstrates that the complaint in general does exist for a considerable length of time before a diarrhoea comes on; and I believe it will be commonly found in a very advanced stage, whenever spontaneous diarrhoea takes place."

Dr. Sherwin further remarks, "He (the patient) continues in other respects apparently in good health; his appetite is but little impaired; reiterated scanty evacuations, amounting in the whole to a sufficient quantity to keep the stomach easy, preserve a sort of balance in the intestinal canal; but, by degrees, the cavity of the gut becomes less permeable; opiates and testaceous powders have perhaps been had recourse to, and the frequent needling to stool abates. The patient and his friends flatter themselves he is getting well; but he soon falls off in his appetite for food. The absence of stools is sometimes attributed to this cause, till the lower part of the abdomen by degrees acquires a remarkable prominence, attended with uncommon rumbling of wind in the belly, like gurgling of water in a bottle. By degrees a total suppression of stools takes place; the tumour of the abdomen increases; the uncommon rumbling of wind becomes more audible, so as to engage the attention of the friends and visitants of the patient. The distention gradually increases, till the stomach is oppressed, and a vomiting comes on. The vomiting is not very frequent at first; but, by degrees, every thing swallowed is vomited up. Severe pains are felt from distention in various parts of the abdomen; and a true iliac passion of the chronic kind comes on, and continues as long as the patient lives, unless he is accidentally relieved by a free discharge of thin fæces, which will sometimes unsuspectingly give a respite to his sufferings. In consequence of which, the appetite for food will again return; the patient will again appear to be getting well; but the anxious solicitude of his friends at this period will urge him to get down a considerable quantity of generous nourishment, till a repetition of the same scene takes place, and the unhappy man is alternately tantalized and worn out, either with a stoppage or a purging.

"If assistance is not called in till the patient arrives at this deplorable state of the disease, the want of stools, the great pain, vomiting, and tenseness of the abdomen, may be pronounced an inflammation of the bowels, or an iliac passion of the acute kind. If powerful means are

employed under such idea, it is easy to conceive that the last moments of the patient must be rendered doubly distressing."

The constant inclination to stool which attends this disorder may be distinguished from a common tenesmus by attending to the following circumstances. A common tenesmus is generally sudden in its attack, or else it follows from purging or dysentery; it is often the consequence of drastic cathartics, and is always attended with considerable pain, and most frequently with a mucous discharge tinged with blood, instead of fæces; whereas, that which accompanies the scirrhus rectum is attended with little or no pain, but with powerful ineffectual strainings; during which, there will be often a discharge of wind; and the mucus squeezed out is slimy, but always more or less black, and the excrementitious matter is very seldom tinged with blood. In the common tenesmus, the impetus seems entirely spent on the sphincter ani, and there is more or less of a protrusion of the gut: but in the straining from a scirrhus rectum, the patient is not sensible of that distress at the fundament which is experienced in the other; and, as soon as the small portion of excrementitious mucus is voided, he is able to rise immediately from the stool; but in the common tenesmus he is under the necessity of straining long, even after the expulsion of all that he knows, from his feelings, will at that effort be evacuated; and, after he is able to rise from the stool, there still continues a burning sensation, urging in a continual expulsion: whereas in the scirrhus rectum, after the patient has strained hard, whenever a small quantity arrives at the anus, it is squirted out with slight efforts, and little or no uneasiness follows; nor does the countenance show that extreme distress which generally attends a spasmodic stricture of a common tenesmus. It may also be observed, that there is very little emaciation of the body or loss of strength until the disorder is far advanced; the countenance then becomes sallow, and in some instances the pulse is quick, and is accompanied by hectic symptoms.

The following description of the appearances on dissection are detailed by Dr. Baillie: "It (the scirrhus) sometimes extends over a considerable length of the gut, viz. several inches; but generally it is more circumscribed. The peritoneal, muscular, and internal, coats, are much thicker and harder than in a natural state. The muscular too is subdivided by membranous septa, and the internal coat is sometimes formed into hard irregular folds. It often happens that the surface of the inner membrane is ulcerated, producing cancer. Every vestige of the natural structure is occasionally lost, and the gut appears changed into a gristly substance."

In the advanced stage of contracted rectum, an abscess often forms near the anus, and common fistula is produced on the abscess bursting, which renders it liable to be mistaken for the original complaint. If operation for fistula be performed under these unfavourable circumstances, it aggravates the sufferings of the patient. Sometimes it happens in the female subject, that, in consequence of an abscess forming, or the intestine becoming ulcerated, a communication is formed between the rectum and the vagina, and the liquid part of the fæces pass through the aperture, and are discharged by the vagina.

The prognosis of this dreadful disease, which Dr. Sherwin wrote 30 years ago, still remains too true: he says, "The disease comes on in the most gradual and imperceptible manner: slow in its progress, but terrible in its consequences; it yields not to medical assistance, but must under the best management become ultimately fatal. It however admits of palliation; and, if early discovered, will also admit of the last moments of the patient being rescued from unavailing, mistaken, and distressing, attempts to cure. It is therefore an object of the most serious attention of the humane practitioner."

Attempts at cure have not, however, been wanting. M. Delpech, in his *Précis Élémentaire*, tom. iii. has proposed

proposed to divide the strictured gut, in order to secure the escape of the contents of the bowels, the confinement of which must, as he observes, produce extreme distress and danger. He adds, that the carrying up a cutting instrument into the midst of a cancerous disease must be expected to produce ulceration, and, in this way, hasten the destruction of the patient; but that, in cases of this kind, every thing that can be proposed is subject to objection. His words are; "On a proposé de faire alors la section de l'un de ces points intermédiaires, afin d'assurer le passage des matières. Ce parti a de grande inconvénients sans doute. Porter l'instrument tranchant au milieu ou tout près d'une affection cancéreuse, c'est hâter l'ulcération, qui doit consommer la ruine du malade; mais, dans des cas de cette nature, on ne peut rien entreprendre que de très-défectueux." Upon this point it has been very properly observed, that operative surgery should rarely, if ever, be recommended, unless where the chances are decidedly in favour of its success: and, if this opinion is right, it must unquestionably be wrong to advise an operation in a disease of inevitably fatal event. It can only tend to bring discredit upon that branch of surgical practice, which, from the positive good that, under proper direction, it is capable of conferring, lays the fairest claim to the regard and confidence of mankind.

Some practitioners have tried mercury in this malady, but with little success. Should we be successful at any future period in the treatment of scirrhus, we may perhaps entertain better hopes of the complaint in question, though the constant irritation to which it must be subjected in this part will render its cure a matter of great difficulty. Défault, in his *Oeuvres Chirurgicales*, mentions cases which were cured by tents; but it is now generally understood, that these were merely simple strictures.

3. *Proctica tenesmus*. A tenesmus is a frequent and insatiable propensity to stool, without being able to pass any thing, notwithstanding the most violent efforts. It may be occasioned by any kind of irritation, either of the rectum itself or of the neighbouring parts; by acrid substances taken into the body; by some of the stronger purges, as aloes, scammony, elaterium, &c. or by sympathetic irritations. It is often very pernicious, both from the excessive uneasiness it occasions to the patient, and from exhausting his strength; and by the frequent and vain efforts bringing on a prolapsus ani, and communicating the violent irritation to the neighbouring parts, as the bladder, &c. When arising from local acrimony or from the use of cathartics, it may be deemed an idiopathic affection; but more generally it is found as a symptom of other complaints, as dysentery, hæmorrhoids, helminthia, costiveness, calculus of the bladder, and pregnancy.

The treatment, when simply directed to the relief of the uneasy sensation, consists in injecting anodyne and mucilaginous enemata, and in exhibiting oleaginous cathartics. A clyster of starch, or of starch and opium, forms the best remedy with which we are acquainted for the relief of tenesmus. In most cases, however, we have to direct our attention to the distant irritation of which this complaint is symptomatic.

4. *Proctica marisca*, (*Hæmorrhoids*, *Cullen*.) Piles. Specific character, livid and painful tubercles or excrescences, usually with a discharge of mucus or blood. Of piles we have the four following varieties.

α. *P. cæca*, (*H. cæca*, *Cull.*) The blind piles: pain and tubercles without discharge.

β. *P. mucosa*, (*H. mucosa*, *Cull.*) Tubercles pale and mucous; they are moreover transparent, compressible, highly elastic, and often produced in the course of a few hours. This variety is supposed to arise from a deposition of serum only beneath the skin.

γ. *P. cruenta*, (*H. cruenta*, *Cull.*) The bleeding piles. Tubercles florid and bleeding; they consist sometimes in distention or a varicose state of the hemorrhoidal veins; more frequently of blood effused into the cellular tissue. They are opaque, of a dark colour, the blood-shining evi-

dently through the skin; and are of a firmer consistence, and more slowly formed, than the preceding variety.

δ. *P. polyposa*. Polype-like excrescences shooting from a slender root; bulbous; soft and compressible; red or reddish; chiefly internal.

Piles in general occasion only a slight degree of inconvenience; but sometimes they give rise to serious grievances, either by bursting and pouring out such quantities of blood as reduce the patient to the lowest state of debility, and dangerously impair his health; or by exciting inflammation around them, and causing abscesses and fistulæ; or by becoming constricted by the sphincter ani muscle, so as to produce exceedingly acute pain; or, lastly, by assuming a malignant character.

P. marisca arises most commonly from some obstruction in the circulation through the hæmorrhoidal veins. Habitual neglect of the bowels favouring the accumulation of hardened feces in the rectum; straining to void a confined stool; the pressure of the gravid uterus, or of any preternatural tumours; a sedentary life; sudden and violent exertion; lifting heavy weights; have, in their turn, been the means of bringing on this disease, and may be considered as some of its most frequent causes.

The first appearance of all the varieties of *marisca* is generally connected with pain and inflammation. The patient usually complains of an uneasy sense of weight and fullness, as well as of heat about the parts, particularly severe in passing a motion. If the inflammation remain unobdured, the fundament becomes very painful; the patient can then neither walk, ride, nor sit, the only tolerable state being that of absolute rest in the reclined position; and, during the continuance of this state, passage of a motion is followed by extreme distress. With these symptoms there is generally more or less feverish heat and restlessness, and perhaps even delirium.

The *mariscæ* may be numerous, or otherwise. Sometimes a single swelling only exists; more frequently there are several surrounding the anus. Occasional hæmorrhage is in most cases connected with *marisca*. Perhaps in the effort to pass a motion, bleeding comes on while the parts are inflamed; in this case, the blood generally flows from within the anus; though it may occasionally spring from some part of the external swelling. Sometimes the bleeding will first occur, and frequently in the absence of every other symptom; or at least without pain, inflammation, or external tumour.

Many respectable writers affirm, that hemorrhoids which are not very troublesome, and discharge only moderate quantities of blood, are rather salutary than hurtful to the constitution, and require no particular treatment. Among these, it may be sufficient to mention, Stahl, Sabatier, and Petit. This opinion has, however, met with some opposition. In Dr. Rees's *Cyclopædia*, article *Hæmorrhoids*, it is strongly argued against. The writer of that article admits the general salutary effect of leeching in hemorrhoids, but affirms that the relief thus obtained arises from its curing other diseases in the constitution which might be as well or better relieved by taking blood from the arm. The writer of that article proceeds as follows: "Entertaining, as we do, a total disbelief of the doctrine, that the bleeding from piles is ever really serviceable to the system, we shall never attempt to re-produce a discharge of blood from them, when such is suppressed; but, at the same time, since a person with piles may also have complaints which require bleeding, we perceive no reason why, in such cases, any change should be made in the common mode of taking away blood, or that venesection in the arm should be abandoned for the employment of the leeches or the lancet in another part. We know, that it is approved as a general maxim, to take away blood as near as possible to the seat of a disease: and to this method we also give our decided approbation. It is for this reason, that we often prescribe the application of leeches to the anus, in cases of inflamed protruded hemorrhoids. But, as we do not credit

credit that the stoppage of bleeding from piles is likely ever to prove a cause of any diseases, but rather of an improvement of the health, we are far from being anxious to see the hemorrhage renewed in any form whatever. But, supposing some illness were actually to be the effect of a suppression of bleeding from the tumours, such illness could only be imputed to a constitutional plethora, induced by the usual evacuation of blood not taking place. Here the redundant and hurtful quantity of the circulating fluid might be much more conveniently and certainly drawn from the arm, in the common way, than by applying leeches to the tumour, or puncturing them with a lancet. The blood, in this circumstance, is not taken away for the relief of the piles, but of some other affection; and, consequently, the principle of bleeding as near as possible to the seat of the disease is not at all observed; as some may suppose it is, in drawing blood from the swellings themselves."

With regard to this subject, we may observe, that there can be little doubt but that, in cases manifestly dependent on pressure of the hemorrhoidal veins, the loss of blood may be useless, perhaps hurtful; but it cannot be questioned, that piles in many instances arise from a disordered state of the abdominal viscera; and that they serve materially to relieve the local plethora of those organs. Hence we see them arise often in dyspeptic and bilious complaints, which they then relieve in a very effectual manner. To say that general bleeding would afford equal relief to these complaints, is to assert what is contrary to experience; and it is equally absurd to say, that in this case the blood is not taken from the part affected, since a glance at the connexions of the hemorrhoidal veins, shows that they are literally continued from the portal system. The frequency of the above-mentioned causes of mariscæ compel us therefore to say, that in dismissing so unceremoniously the observation of the old practitioners, that the bleeding from piles is often salutary, we should act very hastily. We cannot help quoting the appropriate sentiments of Dr. Parr, who (though he deemed the danger of stopping hemorrhoidal discharges inexplicable) says; however, that "it appears rash and presumptuous to deny, at once, what has been established in the opinion of able and experienced practitioners; opinions not hastily taken up, and as quickly resigned, but apparently resting on facts, the result of the observation of many years, in different and distant countries."

Dr. Parr is of opinion, that this complaint in old age is often indicative of disease in the venous system in general. "If in early age we perceive active hemorrhages in the brain, in the more advanced periods we perceive similar effects from venous plethora. We then find those apoplexies and palsies from a languid circulation; in other words, from weakened resistance of the venous system. In the lungs we find, from the same cause, humoral asthma and hydrothorax; in the epigastric region, infarcted liver, and the morbus niger; in the hypogastric, hemorrhoids. If we judge right, hemorrhoids are of two kinds: It is a disease of youth, as well as of maturer age; and, in the former, is often acutely painful without evacuations; in the latter less commonly painful, but usually attended with bloody discharges. In each it seems a salutary determination from parts otherwise overcharged; and this we think is proved by many facts. In the very painful hemorrhoids of young persons, saturnine and cold applications, which relieve pain, often induce sickness and faintness. In speaking of fistula, we have shown that checking the discharge is often injurious, and that consumptive symptoms frequently follow the operation and the healing of the wound. We will admit that such consumptions are connected with the state of the liver; but so far as we have seen, and the cases are not few, the age is not that of biliary congestions, but of accumulations in the lungs, viz. the consumptive period, from fifteen to thirty-five, generally from eighteen to thirty.

It appears then highly probable that congestions on the thoracic viscera are relieved by others on these parts; and we thus see the connexion of hemorrhoids with the general health, independent of any venous connexion with the liver. In these cases, the parts inflamed are carunculæ already mentioned, and the inflammation is active. Yet in the hemorrhoids of advanced life, such congestions evidently take place. The disease is the venous, and the tumours, in the greater number of instances, varices: they bleed, and the patient is relieved. Congestion and inconvenience follow, to be again obviated by a recurrence of the hemorrhage."

The inflamed and irritable state of the sphincter which these complaints have a tendency to produce, often makes it contract spasmodically on the hemorrhoid, and occasion great pain and distress. Mr. Howship mentions two cases in which the contraction was so powerful and continued, that the strangulated hemorrhoid sloughed off.

In speaking of the treatment of this complaint, we shall of course pass over all cases arising from permanent pressure on the hemorrhoidal veins, as from pregnancy, &c. These can only be relieved by the removal of the cause. For the treatment of all the varieties, the same measures are indicated, except that, as the mariscæ are only visible just after the patient has been at stool, in such cases the practitioner is obliged to take this opportunity of performing operations, or of applying remedies.

The relief of the second variety is easily accomplished. Absolute rest for a few days, attention to the bowels, and warm bathing of the parts, will comprise all that is required.

As the P. M. cruenta, or bleeding piles, often produce much surrounding inflammation, they will require, in addition to absolute rest, an active treatment. If the patient is of a full habit, and the parts are very turgid and painful, an important step will be the application of cupping-glasses near the parts. Leeches will occasionally answer the purpose; but, if it be required to take away five or six ounces of blood speedily, the operation of cupping is much more certain and manageable. If necessary, the bleeding may afterwards be encouraged by fomenting with warm water, or a poppy-head decoction. Should the bowels be confined, it may be prudent to delay, for a little while, the additional disturbance incurred by the passage of a stool, perhaps containing hardened feces, until the symptoms are somewhat relieved; although the procuring a cool and gently-relaxed state of the bowels is always important; and indeed, till this point is gained, little real progress in improvement can be made. Should feverish symptoms demand attention, saline or antimonial diaphoretics may, if necessary, be added to aperients; and, when they have operated satisfactorily, we may direct an opiate at night. A salve, made of elder-ointment and the powder of oak-galls, in equal parts, may be applied to the tumours, together with linen wet with the lotio aquæ lithargyri acetati. This latter is more particularly necessary in conjunction with leeches, when the case is accompanied with considerable pain and inflammation.

Painful spasm of the sphincter is to be relieved by the continued use of warm fomentations, or occasionally by gentle steady pressure upon the tumid parts, by which means part of the blood will be made to pass inward by the hemorrhoidal veins, relieving the sense of outward fullness. When the pain and inflammatory state of piles is owing to their being constricted by the sphincter-ani muscle, it is evident that the mode of relief consists in pushing the tumours with the finger a little within the rectum, where they are not liable to suffer from pressure. When mariscæ materially obstruct the passage of the feces, or are very painful, and subject to profuse bleedings, and the means above mentioned are ineffectual, the removal of the tumours should be recommended.

Piles are removed with a knife or scissors, the tumours being

being simply cut through at their bases. In performing this operation we are directed to save some portion of skin, on which account the scalpel is preferable to the scissors. Another mode of removing piles is by a ligature passed round their base. This is an eligible plan when the swellings are situated high up the rectum, where the danger of bleeding is somewhat alarming; but it is tedious, several days often passing before the tumours drop off; and it is also less cleanly, and attended with much more pain than is occasioned by the knife. There are very good surgeons however, who employ the ligature in preference to the knife, and of course where bleeding has produced much debility it is the best method. When the *mariscæ* are numerous, we shall often succeed, as Mr. Ware first observed, in relieving the patient, by cutting off only one of them; for, if an accurate enquiry be made, he believes it will be found that the patient will point to one, or at most to two, of the tumours, from which all the pain proceeds.

If the hemorrhage which sometimes follows the operation of cutting off piles brings on alarming symptoms of exhaustion, we must distend the rectum with a piece of sponge of such size as will make the requisite degree of pressure upon the opening of the bleeding vessel. Some dip the sponge in a styptic lotion; but the best way is to introduce that substance quite dry into the intestine, and let it expand there with the blood which would be imbibed by it.

When we meet with cases of long standing which we have reason to believe connected with disordered function of the stomach and bowels, a very strict attention to diet is called for. This is at all times indeed of the first importance, since it is quite obvious that, the irritation of the passing of stools being the chief source of irritation, every mean which diminishes their volume and acrimony must be a powerful agent in expediting the cure. If, after stopping the bleeding from piles, biliary disturbance occurs, we shall do well to reproduce the discharge by anal leeching after the manner described when speaking of Coprostasis. Oleaginous cathartics will also be found useful.

5. *Proctica exania*, (H. *procedens*, Cullen.) Falling down of the fundament. Inversion and prolapse of the villous tunic of the rectum, from relaxation of the sphincter, with more or less tumour. This species consists of two varieties.

a. *P. simplex*, consists in a protrusion of a part of the internal membrane of the rectum, which, becoming inverted, and passing out at the anus, forms a red soft flatfish circular tumour. It is frequently observed in children; affected with tenesmus or dysentery, in those who are suffering a fit of the stone, or undergoing the operation of lithotomy. Women, having internal hemorrhoids, and in the violent efforts of labour, are also subject to the same accident. Its common cause is too violent and repeated exertions of the rectum itself, excited by some source of irritation about the extremity of this intestine. Thus, the too-frequent employment of aloetic medicines, the action of which particularly affects the large intestines, often occasions the above complaint. The same thing results from ascarides, which, lodging about the lower part of the rectum, occasionally cause excessive irritation. Habitual costiveness, hemorrhoids; in a word, everything which, by stimulating the rectum, excites too violent an action of this intestine, may induce this complaint. In the early and most simple stage of this disease, the swelling may be easily reduced by compressing it with the fingers, and the reduction may be maintained by the application of a bandage, which will keep up moderate pressure; and, even in severe and more advanced cases, the reduction may be readily effected by the following process. The patient being in bed, lying upon his side, or, what is better, on the abdomen, while his buttocks are raised rather higher than the rest of the body, the surgeon is to make strong but equal pressure,

with the palm of his hand, on the lower portion of the prolapsed intestine. By continuing such pressure, the intestine may, in general, be easily reduced. But, if this plan should not suffice, the upper part of the protruded intestine must be compressed with the fingers of one hand, (previously oiled,) while the lower part is pressed upward by the palm of the other. In this way we are almost sure to succeed, unless, from having too long delayed the reduction, the gut has become swollen and inflamed, when it will be impossible to reduce the part before such symptoms have been subdued. For this purpose it may be proper to take blood from the patient, in such quantity as his strength will allow. The intestine may also be fomented; and, when the swelling has been diminished by these means, there will be no difficulty in replacing the parts in the manner just mentioned.

After the bowel has frequently descended, the sphincter sometimes becomes so weakened, that it can no longer keep the part supported. Hence different bandages have been devised for supporting the anus after its reduction: A compress, doubled several times, is usually applied to the anus, and supported in this position by means of a T bandage; and, in many cases, this answers very well! A machine was invented by Mr. Gooch, which has the double advantage of supporting the intestine more securely than any other with which we are acquainted, and of allowing the patient to take a great deal more exercise than he could do without its assistance. M. Bernard has invented an instrument which consists of an oblong oval body, rounded at one end, and terminating at the other in a narrow, rather long, neck, with a flat border at its extremity. The body of this instrument, which is made of elastic gum, when introduced into the intestine beyond the sphincter, dilates and supports the gut, while the sphincter embraces its neck, and the border of this part of the instrument hinders it from ascending too far up the rectum. A string is also attached to the edge, which tends to prevent the occurrence. This pessary is very smooth, and consequently cannot do any injury to the parts. It is also very light, being only composed of a very thin, though tolerably solid, substance. As it is pierced at its termination, it does not impede the discharge of air, which might otherwise incommode the patient.

When the intestine is protruded at the time the patient is at stool, the part is to be immediately replaced. This the patient should accustom himself to do without assistance; and then the bandage, or pessary, is to be applied. In order to strengthen the sphincter ani and adjacent parts, the weakness of which must, in the majority of cases, be regarded as the entire cause of the disease, the patient should take preparations of bark and steel, and make use of the cold bath. Astringent injections, particularly such as are composed of an infusion of gall-nuts, or oak-bark, are also serviceable.

With respect to the ulcerated, inveterate, and irreducible, cases of exania, we may attempt the extirpation of such diseases with the knife.

β. *P. spasmodica*. The tumour large and irritated; and the intestine contracted by a spasm of the sphincter. This serious disorder has been confounded with the previous variety, in which a considerable portion of the colon, cæcum, and even sometimes of the ilium, becomes everted and pushed out at the anus: (Morgagni de Sed. et Caus. Morb. Ex. xxxiii.) The tumour has been also mistaken for a *marisca*; and Dr. Cullen has, perhaps, given some countenance to the error, by describing one of his species of hemorrhoids as produced by a prolapse of the anus. The hemorrhoidal tumour is dull and livid; that from a prolapse of the anus is flesh-coloured, sometimes wrinkled, at others smooth and shining. Former practitioners considered this occurrence in the same point of view as *P. exania simplex*; they believed that the whole of the rectum became everted in consequence of the relaxation of the sphincter and levatores

tores ani, and that it then drew after it other portions of the intestinal canal. But they ought to have been undeceived by the strangulation which generally occurs under such circumstances, and which not only throws a great obstacle in the way of the reduction of the displaced part, but even sometimes brings on mortification. Besides, the connexions of the rectum with the neighbouring parts, by means of the cellular substance which surrounds it, and the attachment of this intestine to the posterior surface of the urinary bladder, render the above origin of the complaint impossible. Such an explanation could only be admitted with regard to those protrusions of the rectum which come on in a very slow manner. This account could not afford a satisfactory explanation of certain cases, in which the everted intestine presents a very enormous tumour. Fabricius ab Aquapendente mentions his having seen tumours occasioned by a prolapsus of the rectum, which were as long as the fore-arm, and as large as the fist. In the *Mélanges des Curieux de la Nature*, we find an account of a tumour of this sort, which was two feet long, and occurred in a woman from parturition. Nor is a more satisfactory reason assigned for these cases, by supposing that they originate from a relaxation of the villous coat of the rectum, and its separation from the muscular one. We are not authorised to imagine that such a separation can take place to a considerable extent, nor so suddenly as to give rise to the phenomena sometimes remarked in this disease. But more accurate observations have removed all doubt upon this subject. In the fourth volume of the *Mémoires de l'Académie de Chirurgie*, we read an account of a pretended prolapsus of the rectum, which, after death, was discovered to be an eversion of the cæcum, the greater part of the colon being found at the lower end of this intestine, and most of the rectum at its upper part. This eversion began at the distance of more than eleven inches from the anus, and terminated about five or six from this opening, the tumour, formed by the disease, having been reduced some time before the child's death. It was impossible to draw back the everted part, in consequence of the adhesions which it had contracted. Another distinction has evinced the same fact. A child, after suffering very acute pain in the abdomen from receiving a blow, had a prolapsus of the intestine through the anus, about six or seven inches long. This was taken for a prolapsus of the rectum. After death, the termination of the bowel out of the anus was found to be nothing less than the cæcum, which had passed through the colon and rectum, to make a protrusion at the anus.

This disease occurs also, as an effect, in obstinate constiveness, stone in the bladder, labour, and helminthia podicis.

In this place we have to detail the measures to be adopted for the removal of concretions and extraneous bodies from the rectum. These concretions may be formed in the larger intestines, and especially in the rectum, by the mere accumulation and protracted lodgment of the fæces. Sometimes, however, these masses of indurated matter include no extraneous substance; in other instances, their nucleus is a biliary calculus; but in most cases they are merely composed of the fæces in a dry hardened state.

Whatever may be the nature of these substances, their existence may be known by the constipation, complete or partial, which they produce; by the sense of weight which the patient feels about the fundament; or touching the indurated obstructing body, by a finger introduced in ano. Oily emollient clysters, and carminative draughts, will serve for expelling such concretions as are not of too firm a consistence; but the extraction of them is absolutely necessary when they are particularly hard. The operation is to be done with a spoon, or suitable forceps, properly oiled; and, after the concretion has been removed, an emollient clyster is to be administered, in order to allay any irritation which may have been

caused by the introduction of the requisite instruments. When the sphincter ani contracts so forcibly, that the operation is attended with extreme pain and difficulty, we are advised by surgical writers to make a dilatation of the anus, by practising an incision at its *posterior* angle: a wound made in this direction cannot injure any part of consequence, whilst there would be a risk of wounding the urethra in the male, or the vagina in the female subject, if the cut were made at the *anterior* angle; and an incision carried *laterally* would be apt to injure the pudic vessels. A division of the fibres of the sphincter ani does not produce any material permanent weakness of its action; and a paralysis of this muscle, according to Riche-raud, can never proceed from such a cause.

The hard concretions which lodge in the rectum cannot be reached with the finger when they are situated high; and, in this circumstance, the surgeon must use a probe, or sound, in order to assure himself positively of their presence.

The extraction of substances which madness or folly have caused to be introduced into this situation is often attended with a great deal of difficulty, and has even demanded, on the part of the operator, more than ordinary sagacity, in consequence of the various shapes, the hardness, and the fragility, of these different bodies. Glass phials, instrument-cases, shuttles, &c. have been introduced into the rectum by maniacs. One person of this description put into his rectum a flint-stone, which did not admit either of being extracted or broken, owing to its hardness and slippery surface, and which in the end caused the patient to die in the greatest agony, with swelling and gangrene in the abdomen. Marchetti has recorded an instance, in which a pig's tail, hardened by cold, was forcibly thrust up the rectum of a girl of the town. This extraneous body could not be withdrawn, as the short bristles, which all inclined outward, immediately came in contact with and pierced the inner part of the bowel. It remained in the part six days, and occasioned a train of alarming symptoms; such as fever, vomiting, swelling of the abdomen, and obstinate constipation. Marchetti fastened a ligature to the end of the foreign body, which protruded at the anus, and then passed the ligature through a long piece of reed, which he introduced up the rectum, and drew the pig's tail through this tube without lacerating the intestine. In another case, a piece of wood, three inches long and two in width, was lodged in the rectum. Colic, tension of the abdomen, fever, constipation, and difficulty of making water, came on, and lasted six days. The impossibility of removing the extraneous substance with a pair of forceps, led to the idea of using a borer, which, having been passed up the rectum under the guidance of the finger, was inserted deeply enough into the piece of wood to draw it out.

Order II. SPLANCHNICA, [Gr. appertaining to the viscera.] Disorders affecting the collatitious Viscera. This Order contains four Genera.

Genus I. *Icterus*, [Gr. from the yellow or golden colour.] Yellow Jaundice. Generic characters—Yellowness of the skin; white fæces; urine saffron-coloured, and communicating a saffron dye. The course of the bile obstructed. This genus has the following five species.

1. *Icterus cholæus*. Specific character; the course of the bile obstructed from its own viscosity, or from loss of contractility in the bile-ducts; general languor; nausea; dyspepsia; and occasional pain or uneasiness at the stomach.

2. *Icterus chololithicus*. (I. calculosus, Cullen.) The course of the bile obstructed by bilious concretions in the ducts; frequent retching occurs in this complaint, with acute pain in the hypogastric region, increased upon eating.

3. *Icterus spasmodicus*. The course of the bile obstructed by spasmodic contraction of the bile-ducts: the

disease preceded by acrimónious ingesta; hysteria, or some violent passion of the mind; and generally subsiding within a few days after these are removed.

4. *Icterus hepaticus*. The course of the bile obstructed by the derangement of the liver from schirrhous or infarction; occasional retching and dyspepsia.

5. *Icterus infantum*. The course of the bile obstructed by viscid meconium; without pain or dyspepsia. See PARTURITION, p. 715.

Jaundice is found symptomatically in pregnancy, colic, coproptosis, and fevers of various kinds; especially in the yellow fever.

The causes of jaundice are sufficiently explained by the above classification, which is indeed founded almost entirely on their variety. The inspissation of bile which occurs in the first species is said by Dr. Saunders to have been found in the gall-bladder, and presenting there a viscid and pitchy consistence. Dr. Powell, on the other hand, states, that it does not seem to block up the large ducts, nor their entrance into the duodenum, but rather accumulates in the liver itself, the deviation from a state of fluidity rendering its passage through the smaller canals difficult. He conceives that this state of the secretion is connected with the use of spirits.

Inactivity of the ducts is another cause of the retention of bile. Some authors have indeed estimated the contractile powers of these parts at a very low rate; but we trust that we shall be able to show, in the proper place, that their contraction, though slow, is powerful and well marked. It cannot however be doubted, but that other powers assist the passage of the bile; as for instance, the occasional distention or relaxation of the stomach, the motions of the diaphragm, bowels, and abdominal muscles. Hence a life of indolence and inactivity seems to be a frequent source of the malady in question. Hence too literary men, and those who are engaged in sedentary occupations, in which for the most part the body is inclined forwards, and the gall-ducts obviously liable to suffer constant compression between the liver and adjoining parts, are frequently jaundiced. But, independently of the deficiency of these aids to the propulsion of bile, a want of contractile power in the gall-bladder will produce jaundice. Dr. Powell mentions a case in which the powers of contraction were lost from over-distention; the accumulation of bile having become so great, as to produce a tumour externally, and an evident fluctuation.

Want of exercise operates powerfully in the production of the second species likewise. Biliary concretions are comparatively more frequent in women than in men; those men who are engaged in literary pursuits are very liable to them; and in either sex they are most common after the active period of life is past. Haller noticed the frequency of their occurrence in criminals whose death had been preceded by long confinement. They are often found in the gall-bladders of oxen which have been stalled during the winter-months; and Dr. Powell believes that they occur in a larger than common proportion of maniacs who have been long confined.

Of the existence of the third species some doubts have been entertained: Dr. Cullen particularly mentions it, and Dr. Powell deems it well established. It is said by Sydenham to come on occasionally during hysterics; and it has been observed to follow violent fits of anger, and other emotions of the mind. But the accurate Dr. Heberden denies the correctness of Sydenham's observation, in respect to hysteria, both from his own experience and the authority of many other practitioners. With respect to the influence of the passions, Dr. Saunders remarks, that anger not only augments the quantity of bile secreted very considerably, but likewise vitiates it: hence it is, that, being carried into the duodenum in large quantities, and regurgitated into the stomach, it produces the same effects as an emetic; and hence probably the term *choleric*, as applied to passionate people. If the ductus communis do not transmit it as fast as it is se-

creted, and the gall-bladder is so full that it cannot receive the excess; then it will be forcibly returned upon the hepatic system, and, by entering the blood-vessels, produce jaundice. Some have supposed that, during the general commotion of the passions, a gall-stone may have been pushed from the bladder into the duct, and thus produced jaundice; but the whole attack has often been too transitory, and too free from the general symptoms of the passage of a gall-stone, to allow of such a supposition. The symptoms of spasm, affecting the parts in question, are, however, generally considered as being similar to those of the passage of a concretion. So that, on the whole, the explanation which Dr. Saunders has given, of the influence of the passions in producing a temporary jaundice, appears to be the most probable.

The fourth species is generally traceable to drinking, as is likewise a thickening of the coats of the biliary ducts, by which their calibre must be diminished, as mentioned by Morgagni (*De Causis et Sedibus Morborum*, Epist. xxxvii. art. 10.) who gives an instance of the total obliteration of the common duct. Dr. Saunders remarks, that this contraction of the canal of the duct is produced by the extension of diseased structure, originally produced in the stomach by the abuse of spirituous liquors, to the biliary ducts. "In the dissection of those who have been intemperate dram-drinkers, the diseased structure may be traced," he says, "from the stomach along the course of the ductus communis; and I have frequently seen these ducts so contracted and thickened, that they could not transmit bile." A similar effect, from inflammation of the liver extending to the gall-bladder and ducts, which often lays the foundation of an incurable jaundice, has been observed by Dr. Pemberton: the inflammation of the duct may be removed, he observes, but the thickening remains, a permanent evil.

In addition to the series of causes already detailed, arising from obstruction to the passage of the bile into the duodenum, it has farther been a question, whether any obstruction to its discharge from the bowels, after it has cleared its appropriate ducts, may not likewise occasion its absorption into the system, and therefore produce jaundice. It would appear, from an experiment of M. Portal, that this may happen. He passed a ligature round the intestine of dogs, a little below the opening of the ductus communis choledochus; and observed that, in five or six hours afterwards, their eyes acquired a yellow tinge; and, upon examining the lacteals, he found them filled with bile. (*Mem. de l'Acad. des Sciences*, 1777.) In some of the cases of obstinate costiveness, accompanied by jaundice, that are on record, it is probable, therefore, that the jaundice was a symptom, rather than a cause, of the costiveness. This seems to be the case, in the slight jaundice of infants, which speedily vanishes when the bowels are unloaded.

It is of consequence that the schirrhous state of the liver should not be mistaken for a mere congestion of blood or turgescence of the vessels throughout the liver, which may press upon and block up the biliary ducts, and thus occasion the absorption of that bile to the secretion of which it ministers. Hepatitis, or inflammation of the liver, is sometimes accompanied by jaundice; and this would probably happen more frequently were it not in general confined to a small part of the viscus, or to its investing membrane. Moreover, after the intermittent fevers of this country, and the analogous remittents of warmer climates, a jaundice often comes on towards the conclusion, which has been considered as forming no very unfavourable prognostic; for there does not generally appear to be any other disease of the liver, in such cases, than an increase of its size, with great accumulation of blood through its substance. Dr. Powell mentions the case of a woman who died of consumption, and whose lungs were found to be almost one mass of ulcerated tubercle; within the last three days of her life, jaundice had come on to a very intense degree. Yet, on dissection,

tion, the ducts were found free, and the gall-bladder empty, and no external tumour was discovered; but in the liver there seemed to be a great accumulation of blood; it was much increased in size, had a loose texture, and was in every part deeply tinged with bile.

Schirrhous tumours of the contiguous parts, as of the head of the pancreas, of the pylorus, scrofulous enlargements of the lymphatic glands in the capsule of Glisson, and steatomatous swellings of the omentum, are often so situated as to obstruct mechanically the passage of the bile into the intestines; tubercles of the liver have sometimes also operated as extraneous causes, and from their local situation, stopped the natural course of the bile. But the liver is often much enlarged by collections of large tubercles, which yet leave, in their interstices, a perfect freedom for the action of the vessels and the passage of the biliary ducts; and scirrhus of the liver is not usually a general disease, but is confined to particular spots, which are often out of the way of the biliary passages; so that it has been found, on dissection, to have made considerable progress without inducing jaundice.

Tympanites is often accompanied by jaundice, a circumstance which is to be deemed very unfavourable. In a case mentioned by Dr. Powell, the accumulation of air was so great, that, very speedily after the appearance of jaundice, the *cæcum* was burst by it, and the patient destroyed.

From whatever cause the obstruction of bile may arise, the absorbents carry back that secretion into the blood with the serum; and with which it becomes so intimately mixed, that it is received into the minutest of the white vessels, as in the eye and white of the nails. All the solid parts of the body, except the medullary substance of the brain, as some have affirmed, even the bones themselves, the fat, and the cartilages, have been observed to be deeply tinged of a yellow colour. The secreted fluids are generally also deeply tinged. In cases of some duration, the perspirable matter is coloured; so likewise is the saliva, which has a very bitter and bilious taste: but the urine is much more highly impregnated with bile, and more speedily, than any other of the secretions. Indeed the milk is the only exception which is made by authors; for the affection is supposed to extend even to the semen.

The affirmation that the bilious tinge extends to the humours of the eye, has not been detected by modern inquirers, and is probably without any foundation. But Galen, Hoffman, Boerhaave, and Sydenham, all assert that they have occasionally witnessed the circumstance; and Lucretius says;

Lurida præterea spectant quæcunque tuentur
Arquati.

Lib. iv. ver. 333.

On the other hand, Dr. Heberden, and other physicians of much observation and experience, have never found such a change of vision in any patient; nor have we ever met with any living practitioner by whom it had been detected. It is not, indeed, an impossible case, particularly where the disease has been of very long continuance and great intensity, when, should the cornea or humours of the eye become impregnated with bile, the light would pass through a yellow medium, and objects thus be tinged of that colour. But these parts are not usually found impregnated with bile.

To sum up more closely the symptoms of jaundice, we may observe, that it is marked by a yellow colour of the whole surface of the body, which is first seen, and is most conspicuous, in the *tunica conjunctiva*, or white part of the eyes, and at the roots of the nails. The urine is thick, of a deep yellowish-brown colour; and tinges linen and other white substances, immersed in it, of a yellow hue; and this indeed is considered by many a pathognomonic sign. The bowels are often costive, but sometimes loose; and the stools are commonly of a very

pale and clay-like appearance both in consistence and colour, from the absence of bile, and have not the usual feculent smell. This disease is accompanied with a sense of much lassitude and languor, and a great inaptitude to exertion; with lowness of spirits, and a feeling of pain and tension, or weight and oppression, about the præcordia; there is also frequently much anxiety, and some degree of difficulty of breathing, as well as a troublesome sense of itching over the skin, unattended by any eruption. Many symptoms of indigestion are generally present; such as nausea, vomiting, flatulency and eructations, and loss of appetite: solid food tastes bitter in the mouth of some patients; and in some states of the disease hiccup occurs, and occasional paroxysms of rigour or chilliness. The state of the pulse varies much; in general it is somewhat quicker than natural; but in some cases, and particularly under the circumstances just mentioned, it is slower. The pain is sometimes extremely acute in the epigastrium, or pit of the stomach, or in the right hypochondrium, especially during the passage of a gall-stone. Moreover the latter circumstance much increases the symptoms.

A pain, which is often most acute and severe, so as to be hardly supportable, but sometimes moderate, is produced, and is often accompanied by shiverings, which afterwards occasionally recur. The pain is seated at the pit of the stomach, and seems generally to be confined to that point of the epigastric region which corresponds to the situation of the opening of the common duct into the duodenum, and from this part it appears to dart through to the back; the pulse at the same time continues nearly as slow as is natural, and has none of the hardness attendant on inflammation. By an attention to the seat of the pain and this natural state of pulse, Dr. Heberden observes, that it is not difficult to foretell the outward yellowness in many cases, some days before it appears. The breath, during the continuance of the pain, becomes short and hurried; there is great general anxiety and restlessness, sometimes amounting to delirium, and at last great depression and fainting; the stomach is affected by nausea and retching; and there are often irregular spasmodic twitches in various parts of the body. There are often profuse sweats, which are, however, sometimes absent; and they do not depend at all upon the shiverings, for they are sometimes present when no shivering has occurred. These symptoms do not continue long in all their violence; for although the patient, during the passage of a gall-stone, is never free from some pain, yet it increases, by paroxysms, to a state of acute suffering, and subsides again into one of comparative ease, during which there is a sense of deep-seated foreboding and fulness of the epigastric and right hypochondriac regions. The greatest relief from pain is experienced by bending the body forward upon the knees, in which position the relaxation of the abdominal muscles leaves the affected parts subjected to the least pressure. Another fit, perhaps of equal or greater violence than the first, then comes on, and alternates with another remission; this may occur several times in an hour; but sometimes the duration of the paroxysm is much longer.

At some early period of these attacks, the jaundice makes its appearance; and it continues for a considerable time after the violent symptoms have disappeared. When the concretion has passed, however, and the more urgent symptoms have ceased, the yellowness may soon be perceived to diminish in its intensity; but, before it can entirely disappear, it requires that the whole quantity of the tinged serum be removed by a gradual operation of the excretory glands, and a fresh supply in a natural state be introduced.

The duration of the attack, including the whole time of the passage of the concretion, is as various as its intensity; sometimes a few hours, sometimes several days, or even weeks, elapse, before it is expelled. In the former case, the passage is often so rapid as not to allow time for the

the jaundice to take place. The number and size of the concretions also vary much: sometimes the gall-bladder is filled with them; at other times there are not more than one or two: sometimes they are small and angular; at others large, and have a more regular surface. They have been sometimes seen nearly of the size and figure of the gall-bladder itself, so as almost to fill the whole cavity. These large concretions are less frequently the cause of jaundice than smaller ones; for, from their bulk, there is but little probability of their entering the *ductus cysticus*, and afterwards of obstructing the *ductus communis*: it is from calculi of smaller dimensions that such obstructions generally arise. Cases are recorded, however, in which calculi of immense bulk have passed; but those have no doubt obtained their passage by contracting adhesion, and producing ulceration into the bowels. It is remarkable, that while stones remain in the gall-bladder they are perfectly harmless; and when they are very small they readily pass with the cystic bile. The principal inconvenience, then, arises upon the accident of their being carried from the cyst into the narrow ducts. Biliary concretions are very frequently found in the gall-bladder, in the dissections of dead bodies, when no symptom has appeared during the life of the person to excite a suspicion of their existence.

It is commonly supposed that the biliary concretions are protruded from the ducts by the contractile power of the ducts alone. The truth of this opinion, however, Dr. Pemberton has questioned; and he maintains, that the gall-stone is propelled by the accumulating bile behind it, which at the same time pushes it forward and defends the duct. For, in the first place, the duct, he affirms, is always found contracted *before* the gall-stone; whereas, if the concretion were protruded by the contractile power of the duct, it ought to be contracted *behind* it. In the second place, opium and blood-letting are employed as relaxants and antispasmodics, and successfully: but this relaxation would rather retard than expedite the passage of the calculus, if its protrusion were the result of the contractile power. This opinion has unquestionably much probability in its favour.

The state of the pulse and the remission of pain, the occurrence of shivering after and not anterior to the pain, distinguish Icterus from the Phlogotica and their consequences.

The icteroidic hue which occurs in Chlorosis is distinguished from the colour of jaundice by the unaltered whiteness of the eye, and the absence of bile in the secretions in the former complaint.

The treatment of this complaint must be varied according to the exciting cause of the obstruction. In Icterus cholæus our object will of course be to promote the action of the liver; for which purpose, brisk doses of calomel given at night, and worked off in the morning with salts, will be necessary; and, in addition to this, the regulation of diet and exercise, as noticed under Dyspepsia, must be attended to; and the muscular system put into moderate and regular action.

In the second species, of course, no permanent cure can take place till the biliary concretions are removed from the bile-ducts; and we know of no agent capable of accelerating their passage. If the notion of Dr. Pemberton be true, such medicines as relax the ducts may indeed be useful; and there can be little doubt but that, seeing how materially the muscular action affects these tubes, its presence may indirectly assist the passage of the stones; but, as to dissolving them by chemical agents, it appears to be a vagary long since given up by all enlightened pathologists; and we believe that we allow to our knowledge of the treatment of these complaints all the praise it deserves, when we state, that it embraces nothing more than the removal of impediment to the spontaneous operations of the affected structure, and the correcting of sympathetic derangements. With this first view, large doses of opium may be given, and such measures

may be used as produce general relaxation, as the warm-bath. The second will vary of course according to the nature of the sympathetic disease. If the passage of the stone excite motions in the vascular system even in a slight degree, we should subtract blood freely and suddenly, and endeavour to calm nervous excitement by digitalis, &c. If, on the contrary, these motions are not induced, opium is unquestionably the most powerful remedy for abating pain with which we are acquainted: it should be given first in a large dose, (for instance two grs.) and then smaller proportions at such intervals that a regular effect be procured; always premising that the bowels are kept open and the vascular system undisturbed.

The same general rules are applicable to the third species. We may remark, however, that in this a free course of purgatives will in most instances be required: these should be of a warm and stimulating nature. The extreme pain often felt in this species requires, as in the former, the exhibition of opium.

In all cases, we think some good will be derived from the use of medicines which promote free discharges of the hepatic secretion. Mercury is of course usually prescribed; but, when this fails or is inadmissible, the acids internally and externally may be used with advantage. Indeed the nitric acid had obtained much reputation in jaundice, even so long ago as the time of Baglivi. The use of alkaline medicines has also obtained some countenance, which can only depend on their correcting in some degree the morbid state of the bile; a state which probably often occasions biliary concretions.

In that state of the liver which produces jaundice towards the end of intermittent fevers, mercury is the best and only remedy; and calomel, in small doses, is the form under which, in this and some other hepatic diseases, it seems to act most powerfully. Where scirrhus of the substance of the liver, or of the neighbouring organs, operates mechanically by its pressure upon the ducts, and occasions jaundice, it is more likely to prove the source of permanent mischief than any other cause, and our means of relieving it are less effectual. In the true tubercle of the liver, which begins with induration, and afterwards passes on to ulceration, the efficacy of any medicine is very doubtful; even mercurials, when given in large quantities, and under any form, have not seemed to produce any decided advantage.

When jaundice arises from a general congestion of the vessels of the liver, general blood-letting, or, if the circumstances of the constitution and strength of the patient forbid that, local bleeding by leeches, or cupping-glasses after scarification, or the application of blisters to the hypochondrium, will be useful, together with the exhibition of purgatives; and if it be admitted, that torpor of the intestinal canal, and a retention of bile or an accumulation of mucus in the duodenum, can sufficiently obstruct the departure of the bile, and thus occasion jaundice, as it seems to do in young children, the employment of any active purgative will be adequate to its removal. Calomel and jalap are particularly well suited to this indication.

Dr. Caleb Miller, of Bristol, (U. S.) has employed with considerable success the phosphoric acid, internally, for the cure of jaundice. He directs a large table-spoonful of the acid, prepared according to the directions contained in Murray's *Materia Medica*, to be added to a pint of balm-tea, and the mixture to be taken as fast as the stomach will bear it, till it operates as a diuretic. In a very obstinate case of jaundice, which was ultimately cured by this remedy, Dr. Miller states, that the patient took eight pints of the mixture in four-and-twenty hours.

Genus II. *Melana*, [from *μελας*, black.] Black Jaundice. Generic characters.—The colour of the eyes and skin fuliginous, leaden, or livid; black viscid dejections, with occasional vomitings of the same; anxiety; depression of spirits.



The nature of this complaint was supposed by the ancients, among whom we may mention Hippocrates, Boerhaave, and Van Swieten, to be occasioned by *atra bilis*. But Dr. Home, in his *Clinical-Experiments*, traces it to an effusion of blood from the meseraic vessels, which, by its stagnation and corruption, assumes that strange appearance. The disease, he says, frequently follows hæmorrhage; and those of a scorbutic habit are most subject to it. It is an acute disease, and terminates soon; yet it is not attended with any great degree of fever. Dr. Good considers that either of these causes may produce it, and accordingly he makes two species.

1. *Melæna cholæa*: the black discharge bilious; the vomiting occasionally green and acid; great languor; vertigo. It seems to depend upon an organic depravation of the liver, chiefly perhaps in the case of habitual gluttons and drunkards, who have paralyzed or worn it out by perpetual stimulation: in consequence of which, a pitchy and stinky bile is secreted instead of the genuine and healthy fluid.

2. *Melæna cruenta*: the discharge consisting of grumous blood intermixed with bile: pungent tense pain in both hypochondria; compressive pain at the pit of the stomach and fainting. This is probably the result of active or passive hæmorrhage (most likely the latter) from the liver, the spleen, the bowels, &c.

This disease has sometimes proved salutary, and it has on other occasions appeared periodically. For the cure of this complaint, gentle purgatives and clysters have been recommended from the time of Hippocrates downwards; and they are as beneficial in this affection as in the hæmatemesis, to which it bears much affinity. Dr. Home employed the diluted sulphuric acid, in addition to laxatives; and, as he believed, with considerable advantage. Emetics he justly deems useless, if not injurious; and shunned the use of opium, as tending to shut up the matter that nature was carrying off. Opiates, however, combined with gentle cathartics, tend rather to aid the operation of the latter, by removing the spasmotic constriction which takes place in the bowels, and thus also afford material relief to the pains. It has been sometimes cured very rapidly by spirit of turpentine in large purging doses.

Genus III. *Chololithus*, [from *χολη*, bile, and *λίθος*, a stone.] Gall-stones. Generic characters—Pain about the region of the liver, catenating with pain at the pit of the stomach: the pulse unchanged; sickness; dyspepsy; inactivity: bilious concretion in the gall-bladder or bile-ducts.

As this disease differs from *Icterus* only in being unattended with yellow colour of the skin, it has been confounded with it by most of the nosologists. Dr. Good has, however, separated them; for he says the yellow dye of the skin and urine, which is the pathognomic symptom of jaundice, occurs often without *Chololithus*; and *Chololithus*, even in its passing species or acute state, without the yellow dye. The different degree in which its symptoms are manifested, according as the gall-stone is stationary or the reverse, has appeared to our nosologists a sufficient reason for separating this genus into the two following species.

1. *Chololithus quiescens*: pain about the liver and at the pit of the stomach obtuse and occasional; the bile less bitter than usual; the dejections irregular.

2. *Chololithus means*: pain about the liver acute; frequent vomitings; dejections white, and at length loaded with one or more bilious concretions.

The reader will find the treatment, &c. detailed under *Icterus*; and the composition of the gall-stones will be mentioned when speaking of the calculous diathesis as connected with calculi in the bladder.

Genus IV. *Parabysma*, [from *παράβω*, male *coacervo*, to heap up, or obstruct.] Knotty or unequal intumescence of the abdomen from an indurated enlargement of

one or more of the viscera contributory to the digestive function; accompanied with derangement of the general health. This is the *Physconia* of Cullen, Sauvages, and others.

The whole of this genus, with the small exception of cases arising from inaction, may be considered beyond the reach of medicine. Indeed, when we consider that, in attempting to remove tumours of long standing, we are endeavouring to alter the actions of parts which have no analogous structures in the natural state, and with the laws of which we are consequently unacquainted, we can have little hope of accomplishing our task. To this we may add, that, while most maladies which depend on exalted or diminished actions of the natural parts have been found at times amenable to medical agency, experience furnishes no unequivocal records of the like happy termination of the distempers in question. Yet do these distant diseases claim our most unremitting, most intense, study and attention; since what we cannot cure we may perhaps prevent. To trace therefore, by dissection of morbid parts, the various appearances which different grades of disorganization present, and to combine this information with close and faithful delineations of accompanying external symptoms, are pursuits which, though we must confess hitherto almost useless in regard to the complaints in question, must ultimately meet their reward. Attempts of this nature have been made, and are still prosecuted with much ardour, particularly on the continent. The knowledge at present obtained is however small and unsatisfactory; so much so indeed, that many of the varieties arising out of the seven species of our author we shall pass over without comment, merely referring our readers to some of the numerous histories which the learned Dr. Good has noticed; and to the article *TUMOURS* for an account of the probable origin and mode of growth observable in disorganization in general.

1. *Parabysma hepaticum*: hard tumour in the right hypochondrium, verging towards, and sometimes appearing at, the pit of the stomach; general languor; pale or yellow countenance; dyspepsy; dejections irregular, often whitish. There are four varieties of this species.

a. *P. coactum*; from infarction. Found in feeble children, who secrete less bile, and have the cells of the liver clogged with mucus from atony of the absorbents. Found also in intemperate livers; and in foreigners who reside in hot climates: an unequal atony, and at times paralysis, being produced in the organ from the excessive stimulus antecedently excited by the rays of the sun or the use of spirituous potations. (See *Hepatitis* in this article.) In this case, gentle doses of calomel, or blue pill, strict regulation of the bowels, abstemious regimen, &c. are generally followed, after due perseverance, by restoration to health. The same remarks are applicable to the treatment of the infarcted spleen; for by these means a spleen so enlarged as to occupy the major part of the abdomen has been effectually removed in a few months.

β. *P. scirrhum*; the tumour assuming a scirrhus character.

γ. *P. cololithicum*; accompanied with bilious concretions.

δ. *P. helminthicum*; accompanied with flukes, hydatids, or other worms. See Winker's *Disp. de Hydat.* apud Bonet, *Med. Septentr.* ii. Darwin, vol. iii.

Other morbid structures of various sorts and sizes are occasionally built up in the liver; but, as there is little evidence of their separate origin, it is needless to multiply the varieties. They are so thickly interspersed in our periodical journals, that all reference seems unnecessary. Some varieties of them will be found in the superb work of Dr. Farr, (*Morbid Anat. Liver*, 1812.)

2. *Parabysma splenicum*; ague-cake: an indurated tumour below the false ribs on the left side, and towards

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the spine on the same side; pale countenance; general debility. Three varieties are noted:

α. *P. coactum*; from infarction. Chiefly after obstinate remittents or intermittents in organs weakened by previous intemperance; the absorbents being hence doubly debilitated.

β. *P. scirrhus*; assuming a scirrhus character. On the death of a woman it was found to weigh thirty-three pounds, and to fill nearly the whole of the abdomen. The complaint lasted seventeen years before the patient died, during nearly the whole of which she pursued her usual avocations. *Sauvages*.—Three times its natural size. *Baillie*, *Morb. Anat. Fasc. vi. pl. 3.*—Contained fifteen pints of pus. *Hist. de l'Acad. des Sciences, 1753.*—The entire viscus has often been extirpated without injury.

γ. *P. cartilaginofum*: the coats of the spleen converted into a cartilaginous substance. *Baillie*, *Morb. Anat. Fasc. vi. pl. 1.*

δ. *P. parabyfina pancreaticum*: hard elongated tumour, running transversely in the epigastric region; dyspepsy; general languor. Here are two varieties.

α. *P. coactum*; from infarction. *Baillie*, *Morb. Anat. pl. vii. fig. 1.*—Torpidity produced by the stimulus of tobacco, almost incessantly chewed or smoked for many years; fatal. *Darwin.*

β. *P. calculofum*; accompanied with white calculous concretions. *Baillie* ut sup. fig. 2, 3, 4.

The pancreas occasionally assumes a scirrhus structure. It is described as remarkable for the little general disturbance of the system; the fixed and burning pain at the pit of the stomach, excessively increased by the pressure of the distended stomach; so much so indeed, that, though the appetite is often good, the patient is compelled to induce vomiting after eating, to lull the pain. The bent posture, as taking off compression, is likewise preferred. Costive state of the bowels much increases the pain, by producing the like pressure on the diseased viscera. The palliative treatment is therefore obvious.

4. *Parabyfina mesentericum*: indurated and irregular mass of tumours below the stomach, yielding to the pressure of the hand; pale bloated countenance; atrophy; the appetite at the same time seldom diminished, often voracious. There are six varieties.

α. *P. helminthicum*; accompanied with hydatids or worms.

β. *P. strumosum*; accompanied with scrophula. See *Marasmus*, in this article.

γ. *P. scirrhus*; accompanied with scirrhus.

δ. *P. sarcomaticum*; accompanied with sarcomatous excrescences.

ε. *P. steatomatofum*; accompanied with steatomatous excrescences. In one instance, the tumour weighed 40 lbs. *Nov. Act. Nat. Cur. vol. i.*

ζ. *P. fungosum*; accompanied with fungous excrescences.

The above varieties are from *Sauvages*, who has been copied by *Cullen*. The tumours are often very large, and conglobated; and at times accompanied with cysts filled with a limpid fluid. In one instance these amounted to twenty of various sizes, one as large as a child's head, six as large as the fist, and the rest resembling hens' and pigeons' eggs. Hence the whole abdomen is in some cases so generally tumefied as to give a semblance of pregnancy. This is particularly the case with the last variety; and as the appetite, state of the bowels and bladder, are often unaffected, there is not unfrequently some difficulty in determining the nature of the disease. See *Sauv. in loco*; as also the writings of *Welsch*, *Trincavelli*, *Morgagni*, and *Riolani*, who have made collections of extraordinary cases; and compare *Cruikshank* on the Anatomy of the absorbing Vessels, p. 115. 2d edit. 4to.

5. *Parabyfina intestinale*: the tumour hard and circumscribed; round or elongated; moveable upon the pres-

sure of both hands; irregular dejections; obstinate vomiting; pyrexia; and for the most part emaciation. Two varieties.

α. *P. conglomeratum*; cohesive, and conglomerated. *Morgagn. de Sed. et Caus. Morb. tom. ii.* In this case the tumour lay sensible to sight, of a circular shape between the ensiform appendix and navel. On dissection, the ileum and adjoining portion of the jejunum were retracted upwards, coacervated, and firmly adhesive.

β. *P. sarcomatofum*. *Fantoni. Obs. Med. select. ii.* In this case the tumour, of an oblong shape, lay below the left hypochondrium inclining to the epigastrium, prominent, with unequal hardness. On dissection, every other part being found healthy, the colon, under the stomach, and towards the left side, for the length of the palm of the hand, appeared closely indurated, distended, and loaded with a fleshy fibrous peculiarly-thickened tumour, which contracted its diameter.

6. *Parabyfina omentale*; the tumour indurated and diffused; frequently spreading over the whole of the abdominal region; dyspnoea; emaciation. This species is usually of a mixed kind: infarcted; scirrhus; glandular; and cartilaginous. It has been found of various extent and magnitude; from a weight of five pounds to twenty, twenty-five, thirty, and in one instance (*Greg. Horsii. Prob. 10. dec. vi.*) fifty-six pounds, occupying the whole capacity of the belly. In one case, the hardness was almost stony: *Panarol. Pentec. iii. obs. 10.* In another, osseous, the weight thirteen pounds: *Mongin. Hist. de l'Acad. des Sciences, 1732.* In a third, loaded with many thousand glandules; in a fourth, accompanied with excruciating pains, the weight sixteen pounds: *Huxh. Phil. Trans. vol. vii.*

7. *Parabyfina complicatum*: the belly hard, elevated, and distended as though pregnant, and often supposed to be so; yet more or less knotty and unequal; the breathing seldom impeded; for the most part, acute pain, nausea, obstinate vomiting, and thirst. (*Phylconia polyplanchna. Sauv. Cull. Phylconia visceralis. Auc. Var.*)

The symptoms of this species, *Dr. Good* observes, must vary according to the organs affected, and the nature and extent of the disease. The enlargement is generally found to be sarcomatous, scirrhus, hydatidous, or adipose. The liver is in most cases more or less concerned; sometimes in connexion with the spleen, sometimes with the mesentery, sometimes with the stomach or intestines, and sometimes with all together. *Hildanus* found the liver so enlarged as to pass beyond the false ribs of the left side, with the spleen equally enlarged, and fixed to the hepatic lobe. *Cent. ii. Obs. 45.*—*Huldenreich*, in a woman of forty-five years of age, found the liver scirrhus, weighing fourteen pounds, with a fleshy excrescence in the mesentery of the size of a child's head: *Miscel. Nat. Cur. ann. vi. and vii.* Jaundice accompanied this case.—*Bartholine* mentions a woman of elegant form, in the flower of her age, attacked with another variety of this disease, which at length destroyed her: when all the intestines, liver, spleen, and every adjoining viscus, were found intermixed, and buried in fat; the liver being at the same time enlarged and scirrhus, and filling both hypochondria; the stomach thickened, and cartilaginous. *Cent. ii.*—*Coiter* found the whole of these organs adhering together, and filled with cysts of different sizes distended with a limpid fluid; he reckoned more than fourscore: the organs themselves were exhausted and dry. *Obs. Anat. p. 117.* See also the works of *De Haen* and *Boerhaave* for remarkable dissections of the same kind.

Recent researches seem to prove in a very convincing manner, that, however different the matter contained in abdominal tumours, they have a common origin in tubercles, or, as some say, in hydatids. We shall not enter into this speculation now; but, as it is of importance to distinguish the earliest approaches of a disorder which gradually involves the whole of the liver, peritoneum, intestines,

testines, and occasionally the stomach, in one dreadful and incurable disease, we shall transcribe from Dr. Baron a clear, and we believe, from our own observation, faithful, portrait of its primary symptoms.

The complaint comes on in general with tenderness and distention of the abdomen, accompanied with nausea and vomiting. The bowels, for the most part, are costive, both before and after the attack; but they are frequently in an opposite state. At this period, the symptoms not being so violent as to force the patient to seek for proper relief, they are very apt to be neglected: but, unless the true nature of the disorder be discovered, and its course arrested at an early stage, all subsequent efforts will probably be useless. The progress of the affection is as follows: the bowels become more and more irregular in their action; the tenderness and swelling increase; the appetite fails; the pulse acquires greater velocity; the features look sharp and contracted; the countenance becomes pale or fallow, the lips parched and skinny; the tongue sometimes of a bright colour, resembling what is seen in diabetes, at other times it is covered with a thick whitish mucus. The flesh and strength decay rapidly: great emaciation takes place: the skin, except towards the last stage, is for the most part dry and scaly: the urine small in quantity; occasionally clear, more frequently otherwise. If a cough has not existed from the beginning, it is very apt to occur about this time; but this is by no means to be considered as a diagnostic symptom; its existence depending upon the spreading of the disease to the pleura, and thoracic viscera.

The feet sometimes swell towards the conclusion of the disease, or the swelling is confined to one leg or thigh. At this period, if the examination of the abdomen be made with due care, it will be found to communicate to the touch the feeling occasioned by a solid tumour; the integuments and muscles not rolling upon the contained parts as in a state of health. But in some cases, where the effusion is conjoined with the original and more important disease, a sense of fluctuation may be discovered. Very frequently the patient complains of a distressing feeling of a "broiling heat" at the stomach; the discharge of a tough ropy phlegm from the mouth, constant nausea, with violent retching and vomiting; and, in two cases, the matter brought up during several days before death was stercoraceous. In the course of the complaint, the appetite is for the most part very bad; but the desire for liquids is insatiable, even though a consciousness exists that a large quantity cannot be swallowed without occasioning very great distress. When a feeling of sinking and emptiness prevails, the patient eagerly thinks of many articles that might allay his uneasiness, but the sight of them seldom fails to excite loathing and disgust. Should any sustenance be taken, it is either speedily returned by vomiting, or it causes indefinable uneasiness. The patient rolls about in all directions, in vain seeking for some point where he may repose. Every action of the stomach or intestines comes to be performed with great pain. The passage of flatus upwards or downwards, the movements which take place before the evacuation of the bowels, all give rise to suffering. At times the pain is sharp and transient; at others it is heavy and obtuse; but a sense of weight is seldom absent; and it is more felt after vomiting or purging than before. One patient, (an infant,) in allusion to this symptom, used to put his hand on the abdomen, and exclaim piteously, "Oh! so heavy!" Another said, that his bowels felt as if they were "tied up in a napkin." At another time he said, "they seemed to be in a mass;" and at a third, he declared that, if he had "a shot attached to every convulsion of his intestines, he could not suffer more than he did."

The above-mentioned author has not found medical treatment of much avail even in the earliest stages of the above complaint. The production of a continued state of nausea has seemed to him to be attended with some

advantage; and Dr. Jenner has communicated some cases which were cured by a long continuance of that uneasy sensation. It is necessary, moreover, to palliate the symptoms by bleeding occasionally; to keep the bowels lax, and to relieve pain by narcotics. Mercury, which might be supposed an agent of some use in promoting absorption, appears to aggravate rather than to ameliorate the complaint. It is to be observed, that a somewhat different practice will be resorted to by those who regard this disease in a different light from Dr. Baron; this gentleman considering it a disease of the absorbents, while others consider the tubercles (the most common and earliest appearances on dissection) to be produced by effused coagulating lymph, the consequence of inflammation. Dr. B. opposes this view of the case with much ingenuity; but, upon summing up all the facts known on this interesting subject, and after tracing the different gradations of diseased structure with much labour, we are forced to acknowledge our information very insufficient, and our minds far from being made up on this head.

CLASS II. PNEUMATICA, [from πνευμα, breath.]

DISEASES of the RESPIRATORY FUNCTION.

Order I. PHONICA, [from φωνη, the voice.] Disorders affecting the Vocal Avenues. This Order contains six Genera.

Genus I. *Coryza*, [Gr. nasal mucus.] Running at the nose. Galen confines the term *κορυζα* to defluxion from the nostrils alone; but Hippocrates, as we learn from Celsus, applied it equally to defluxions from the head, nostrils, fauces, and chest. The latter Greek physicians restrained it to the first, and distinguished the two latter by the name of *catarrhus* (καταρραγμός), which equally imports *disillatio* or defluxion. Among modern writers *coryza* is used synonymously with *catarrh*, and is consequently regarded as a febrile affection. It may indeed occur, and often does so, in various fevers as a symptom; but the older nosologists are more correct in giving it a place distinct from fever, when strictly genuine. Defluxion from the nostrils may proceed from two very different sets of causes: increased action of the secretants, and diminished action of the absorbents. The first or stimulating set may consist of stertorations; of the irritation of sympathy, as in crying; of infectious effluvia in the atmosphere (sometimes, though seldom, limiting their action to the mucous membrane of the nostrils, and hence approaching the nature of catarrh); and of the local stimulus of an *ozæna*, or nasal ulcer. The action of the absorbents may be diminished by exposure to severe cold; by the debility of old age; and by a long habit of stertorations, which have a tendency, in proportion to their use, to render all the vessels of the nostrils torpid; although the absorbents, as in the cases of age and cold, and indeed in all instances of debility, are sooner operated upon than the secretants. Here, therefore, the defluxion is produced, not from increased secretion, for the secretion may even be less than in a state of health; but from the secretion, whatever its quantity, not being carried off by its usual channel; and hence again that frequent and unsightly dripping from the nostrils of persons who addict themselves to large quantities of snuff. Of this genus we have two species, with their varieties.

1. *Coryza entonica*: the defluxion pellucid, mucous, or ropy, with a sense of irritation or infarction. This species is divided into four varieties.

α. *Sternutatoria*; from stertorations.

β. *Lachrymosa*; from weeping or crying; the lachrymal secretion being increased by mental emotion.

γ. *Catarrhalis*, cold in the head; from sudden cold or change in the temperature of the atmosphere; accompanied with a nasal voice and loss of smell; and excoriation of the mucous membrane of the nostrils. The catarrhal

coryzal variety of Coryza is most frequently met with in damp weather; and, as might be supposed, oftenest attacks persons of the most delicate habits. In general the increased secretion induced gradually unloads the mucous membrane, and the complaint goes off. It is frequently connected with irritation of the bronchial lining of the lungs, and is then cured by the same measures as the latter affection.

C. catarrhalis in infants is often however of a violent nature; so much so indeed, that we shall give a more full account of it than of the preceding varieties. This coryza generally attacks infants at the breast; it is characterized by sneezing, tumefaction of the nose and eye-lids, and a shining appearance of the skin covering those parts; constant open state of the mouth; a rather dry state of the lips and tongue; the respiration is accompanied by a nasal wheezing. Sucking is impeded, though liquids put into the mouth are swallowed with facility; the infant takes the nipple in his mouth, but he has hardly made three or four suckings when his respiration appears to be obstructed; his face becomes of a violet colour; he precipitately abandons the nipple, utters some cries, and is seized with a fit of severe coughing, which leaves him in a state of partial stupor. These accidents disappear in a short time, but are renewed whenever he again attempts to suck. This first stage of the disease lasts for four or five days, or thereabouts; it is followed by a secretion from the nasal cavities, the existence and quantity of which, at least in new-born children, it is not always easy to ascertain, because it either dries or falls into the pharynx when the infant lies horizontally on its back. The absence of any appearance of malformation of the tongue or of the mouth, the facility of deglutition, the occurrence of fits of coughing every time the infant attempts to suck, joined with the particular symptoms before mentioned, such as a shining appearance of the skin of the nose, with a tumefaction of this part and of the lower eye-lids, a nasal sniffing, the manner of respiration by the mouth, clearly show inflammation of the mucous membrane of the nasal cavities. The infant should be kept warm; and we should direct the attendants to foment its nostrils with a warm decoction, and carefully remove the mucus collected in them. The infant will generally be able to suck as soon as the state of the nasal cavities permit it to breathe with the mouth closed.

δ. C. ozæna, [from *ὄζω*, stench.] An ulcer situated in the nose, discharging a fetid purulent matter, and sometimes accompanied with caries of the bones. Some authors have signified by the term, an ill-conditioned ulcer of the antrum. The first meaning is the original one. The disease is described as coming on with a trifling tumefaction and redness about the ala nasi, accompanied with a discharge of mucus, with which the nostril becomes obstructed. The matter gradually assumes the appearance of pus, is most copious in the morning, and is sometimes attended with sneezing and a little bleeding. The ulceration occasionally extends round the ala nasi to the cheek, but seldom far from the nose, the ala of which also it rarely destroys. The ozæna is often connected with scrophulous and venereal complaints. In the latter cases, portions of the ossa spongiosa often come away. After the complete cure of all venereal complaints, an exfoliating dead piece of bone will often keep up symptoms similar to those of the ozæna, until it is detached. Mr. Pearson remarks, that the ozæna frequently occurs as a symptom of the Cachexia siphiloides. It may perforate the septum nasi, destroy the ossa spongiosa, and even the ossa nasi. Such mischief is now more frequently the effect of the Cachexia siphiloides than of Lues venerea. The ozæna must not be confounded with abscesses in the upper jaw-bone.

The variety we are treating of has its origin, in common cases, from a violent degree of catarrhalis; and therefore, when the former complaint is present, it is necessary to repress it as fast as possible, by local bleeding

and counter-irritants, before this unpleasant and intractable stage of the complaint be induced. When Struma or siphilis is the cause of the discharge, the general treatment of those affections must be had recourse to. Causes which arise from the former of these complaints are the most tractable.

2. Coryza atonica: defluxion limpid, and without acrimony, or sense of irritation. Three varieties.

α. Algida; from exposure to a keen, frosty, air.

β. Senilis; from old age.

γ. Superacta; from long and immoderate use of strong aromatics, volatile alkali, or snuff.

Genus II. *Polypus*, [from its resemblance to the worm of that name.] A fleshy elongated excrescence, shooting from one or more slender roots in the cavity of the nostrils, running in different directions, and affecting the speech.

It has lately been the custom to apply the term *polypus* to a variety of concretions and excrescences arising in different parts of the body, of very different origins and textures, as polypi of the heart, which are perhaps always grumous blood, or concrete gluten; polypi of the uterus and bladder, which are caruncles with a slender base or peduncle; and polypi of the trachea, which are also concrete gluten, occasionally coughed up, sometimes solid and branching, sometimes tubular. Dr. Good, however, has followed Celsus, and most writers from his time to that of Heister, in restoring and limiting it to the fleshy and ramifying excrescence of the nostrils; and he divides it into two species.

1. *Polypus plasticus*, the soft polypus: soft, compressible, chiefly pale-red; apparently originating from distention or relaxation of the Schneiderian membrane.

2. *Polypus coriaceus*, the hard cartilaginous polypus: firm, cartilaginous, chiefly deep-red; apparently originating from, or connected with, a caries of the ethmoid bone.

This complaint, being mostly the subject of manual operation, will be treated of under the article SURGERY.

Genus III. *Rhonus*, [Greek.] Hoarse sonorous breathing from stagnation of mucus in the vocal canal. There are two species.

1. *Rhonus stertor*, snoring or snorting: the sound deep and loud; produced in the larynx and fauces.

2. *Rhonus cerchnus*, wheezing: the sound dense, and impeded; produced below the larynx.

We cannot help considering both these species as symptomatic; though Dr. Good says, "it requires only a slight knowledge of the habits and morbid actions of the animal system to discover instances in which both sorts are idiopathic." But his mode of proving this assertion seems rather to favour our opinion than his own; for he states, that "many persons have a thick or wheezy respiration, produced by corpulency, or by changes of the atmosphere from hot to cold, or from dry to moist, without any other diseased affection."

Of the remaining three genera of this order we shall merely give our author's divisions, the subject being amply treated of under the articles DEAF and DUMB, STAMMERING, STUTTERING, &c.

Genus IV. *Aphonia*, [from *α*, priv, and *φωνη*, voice.] Dumbness; total inability of speech. (*Mutitas*, *Cull.* and *Sauv.*) This, we think, should have been the last genus of the order. It contains three species.

1. *Aphonia elingium*, dumbness from the want of a tongue: This species is naturally divided into two varieties: α, congenita, where the destitution is coeval with the birth; and β, where the same is produced by accident, punishment, or disease. In either case we may naturally suppose this to be a radical and irremediable defect. Privation of the tongue, however, is not always accompanied with dumbness; since we have numerous, and

and apparently well-authenticated instances of the speech remaining perfect after a total loss of tongue and of uvula. We shall cite two of the most remarkable.

The first is of a woman who was a native of Monfaray, in the territory of Elvas, in Portugal. The case was attested by Wilcox bishop of Rochester, then chaplain to the English factory at Lisbon, in a letter dated from that city, Sept. 3, 1707; and was laid before the Royal Society in London. The following is an extract from the letter: "The Conde d'Ericeyra, a nobleman of letters, and curious in natural knowledge, brought from the frontiers of this country a woman without a tongue, who yet speaks very well; she is seventeen years of age, but in stature exceeds not one of seven or eight. I was with her at the conde's house, and made her pronounce every letter of the alphabet, which she can do distinctly. She hath not the least bit of a tongue, nor any thing like it; but the teeth on both sides of her under-jaw turn very much inward, and almost meet. She finds the greatest want of a tongue in eating; for, as others when they eat move their meat about with their tongue, she is forced to use her finger. She pretends to distinguish tastes very well, but I believe doth it imperfectly. Her voice, though very distinct, is a little hollow, and like that of old people who have lost half their teeth."

The other case was that of a girl born in Portugal also, (in 1718,) without a tongue. M. de Jussieu, of the French Academy, saw her at Lisbon when she was about fifteen years of age. He examined her very attentively. In the place of the tongue was a small fleshy substance, which he found was able to contract and dilate itself, of course it had all the muscles of the tongue. The places where the tongue should be, remained plump and full, as if the tongue had been in being. He examined afterwards how she performed the several functions of the tongue. First as to speech: she pronounced several words so distinctly, that, had he not known she wanted the tongue, he could not discover by her speech that she wanted it. She, however, pronounced the letters C, F, G, L, N, K, S, T, X, Z, with more difficulty than the other consonants. When she pronounces them, she inclines her head forward, drawing back the chin as it were to the larynx, in order to raise it in a line with her teeth. The second function of the tongue, the taste, she had as exquisite as any body. She told M. de Jussieu, that she found an agreeable taste in those dry sweetmeats he had given her. Mastication she performed with difficulty: the above fleshy substance was not long enough to gather and keep the food under the teeth: she was here obliged to use the maxilla inferior, which through habit she could either approach or remove from under the superior, as she wanted to bring the morsel she would grind under the upper jaw. She sometimes used her finger for the same purpose. Deglutition must needs be difficult to her. The tongue naturally forms itself into a kind of a hollow, somewhat like a spoon, by which means it gathers every atom in the mouth, and protrudes them into the pharynx; but here nature and use from her infancy have in some measure supplied this want of a tongue. The muscles attached to the above fleshy substance raise themselves up, forming at the same time a kind of rima, which, in some sort acting the part of a tongue, protrudes the aliments into the pharynx, she observing to incline her head forward, which facilitates their descent. Those, together with the labial muscles, help her by their contraction to spit out what is in her mouth.

M. Roland, surgeon at Saumur, has a case pretty nearly the same. A boy, nine years old, lost his tongue by a mortification that ensued an ulcer he had after the small pox. There was this difference, the root of the boy's tongue was bifurcated, and pretty apparent, whereas the root of the above girl's was round and small. This boy also could speak, and perform the other functions of the tongue, like the girl.

2. Aponia atonica: speechlessness from atony of the vocal organs. Here also we have two varieties.

a. Oblæsa; from lesion of the nerves of the tongue; as in paralysis.

6. Pathematica; from sudden and overwhelming terror or other violent passion. Commonly temporary, sometimes permanent.

3. Aponia furdorum. Dumbness from deafness, congenital or produced during infancy.

Genus V. *Dysphonia*, [from *dys*, bad, and *φωνη*, voice.] Sound of the voice imperfect or depraved. This is the Aponia of Cullen and Sauvages. There are three species and many varieties.

1. *Dysphonia susurrans*: the voice weak, whispering, and scarcely audible. The varieties are—

a. Oblæsa; from lesion of the nerves of the larynx.

β. Pathematica; from sudden and overwhelming terror, or other violent emotion of the mind: occasionally permanent.

γ. *Compressoria*; from permanent compression of the trachea.

δ. *Catarrhalis*; from neglected catarrh.

a. *Enervis*; from simple debility of the larynx without any obvious cause. Dr. Good "has at this time a case under his care produced in this manner, in which the patient, about forty years old, and otherwise in good health, has never spoken, except in a whisper, for the last six years."

2. *Dysphonia puberum*, change of voice. The voice dissonant and untrue to itself, irregularly alternating from harsh to shrill; confined to the age of puberty. This, we think, can hardly be considered as a disease. Sauvages and Cullen call it *Paraphonia puberum*.

3. *Dysphonia immodulata*: the voice permanently depraved or inharmonious. The varieties are—

a. *Rauca*; naturally or habitually hoarse, harsh, or rough.

β. *Nasalis*; sent with a cracked and grating sound through the nostrils. Produced by habit, affection, or nasal obstruction.

γ. *Clangens*; shrill and squalling.

δ. *Sibilans*; with a whizzing or hissing sound.

1. *Stertens*; with a snorting, snoring, guttural, or stertorous sound. Usually from relaxation of the glottis or velum palati.

2. *Palatina*; hoarse, obscure, indistinct; with a fissure or other defect in the palate. This defect is mostly congenital; but occasionally a sequel of lues and some other disorders.

Genus VI. *Pfelliismus*, [Gr. to stammer.] Articulation imperfect or depraved. There are two species.

1. *Pfelliismus bambalia*, stammering. The flow of the articulation disturbed by irregular intermissions or snatches. Dr. Good makes two varieties.

a. *Hæsitans*, or hesitation: involuntary and tremulous retardation in articulating particular syllables.

β. *Titubans*, or stuttering: involuntary and tremulous reduplication of some syllables, alternating with a tremulous hurry of those that follow.

These two varieties of stammering are thus well described by Shakespeare: "I would thou couldst stammer, that thou mightest pour out of thy mouth, as wine comes out of a narrow-mouthed bottle, either too much at once or none at all."

2. *Pfelliismus blæfatas*. The enunciation vitious. Here we have no fewer than seven varieties.

a. *Ringens*; with a vibration or redoubling of the letter R.

β. *Lallans*; the letter L unduly liquid, or substituted for R. As when delusive is pronounced delisive, as though the l possessed the power of the Spanish ll, or the Italian gl; or as when parable is pronounced pable.

Alcibiades is supposed to have laboured under this defect. It is also said to be common to the Jews of China, who have dwelt among the Chinese so long as to have lost the sound of R, in consequence of its not existing in the Chinese tongue.

γ. Emolliens; the harsh letters exchanged for soft, as in the substitution of anzel for angel; capidol for capitol; dat for that.

δ. Balbutiens; labials, as B, M, P, too frequently introduced, or used instead of other letters. So *Veda* is pronounced *Beda*, *Venares* *Benares*, in Bengal, the Bengalee having no V. So *impringe* is often used for *infringe*; *ibory* for *ivory*; though *b* and not *v* is here the radical letter, the Latin term being *ebur*.

ε. Mogilalia; labials omitted or exchanged for other letters. Most commonly P for F, and F for V, as *filfer* for *filfer*; *vish* for *fish*. So the Latin *sibilo* is transformed by the French into *siffler*.

ζ. Dentiloquens, lisping; dentals, as C, S, T, Z, too frequently employed; producing the effect of what is called, in common language, speaking through the teeth.

η. Gutturalis; imperfect utterance of the guttural letters; as G, J, H, X. This, and indeed all the varieties of the present species, as well as many others that are connected with it, are most usually the result of vicious habit, produced by want of attention to the articulation of sounds in infancy, or to affectation. They are also sometimes dependant upon a misconstruction of the vocal organs: of which the present variety furnishes us with an example; for a defective utterance of the guttural letters must be a necessary consequence of a fissure in the palate.

Order II. PNEUMONICA, [Gr. from *πνευμα*, breath.] Disorders affecting the Lungs, their membranes, or motive power; and producing irregular, impeded, or painful, respiration.

The respiratory system performs the task of presenting to the blood a certain aerial matter necessary to that fluid ere it can perform many of the most important functions of the animal economy. The powers in use are, 1. Large sponge-like masses called *lungs*, which passively receive and emit, and which in the remotest termination of their cells allow contact (or nearly so) between the blood and the atmosphere. 2. Moving powers, or muscles of respiration, which, alternately pressing or removing pressure from the lungs, allow the weight of the atmosphere to inflate the sponge, or on the other hand expel the air evidently changed in its properties. Between these two parts, viz. the mucous lining of the lungs and the respiratory muscles, a strong and perpetual sympathy exists. No sooner have the lungs become filled with air to a certain extent, than the stimulus applied is conveyed to the muscles, which contract and empty those organs, while the contraction of other muscles occurs to dilate the chest again as soon as the uncharged blood, flowing into the lungs, produces an uneasy sensation. This sympathy brings to our consideration the 3d agent concerned in respiration; viz. the nervous system.

These are the agents which apply the air to the blood. The power which applies the blood to the air, namely the *heart*, is likewise to be taken into consideration, as this organ and the lungs are generally connected in disease and in health. Leaving out of the question for the present the remote injury to the brain by deficiency of blood, and to the heart by depravation of the same fluid, and premising that no impediment exists to breathing in the mouth, nostrils, or fauces; we remark, that the aerial change of the blood may be imperfectly or difficultly performed in consequence of a want of the due expansion of the lungs; from an altered action of the respiratory muscles; or from an altered state of the respired air.

The due expansion of the lungs may be prevented by an alteration of structure, whether of the tubes and cells, or of the substance, of the lungs; as by ossification, by abscesses, by hydatids, by tumours, by condensation of the lungs; by earthy concretions; by plethora of the blood-vessels of the lungs generally, whether pulmonary or bronchial. The due expansion of the lungs may also be prevented by anasarca or by emphysema of the cellular membrane which connects the bronchia; perhaps by adhesions of the pleuræ; by collections of fluid in the cavities of the pleuræ; by enlargement of the heart, or by enlargement of any of the parts so situated as to offer mechanical impediment to the enlargement of the thorax. Ossification of the cartilages of the ribs; gibbosity; ankylosis of the joints between the ribs and the spine; irregular action of the diaphragm; or obstacles to its descent, as distention of the stomach or of the intestines, or paralysis, or hydrops, may likewise be enumerated as capable of hindering the expansion of the lungs.

The action of the respiratory muscles may be diminished by contractility in their fibres, or by want of nervous power. It will be increased by every circumstance capable of irritating the mucous membrane of the lungs, and thus exciting sympathy, in common with other muscles, by the action of the brain, or by general increase of contractility.

The air which is respired, may be deficient as to quantity, or it may be too much rarified, or it may contain noxious particles, or it may consist of some noxious gas; or, in short, its composition may be altered in various ways from the natural constitution of the atmosphere.

The first and most remarkable mode in which the respiratory system is deranged is in what is called *coughing*. In this action a large quantity of air, furnished by a considerable inspiration, is violently and suddenly expelled, with a considerable noise, by a very strong and almost convulsive expiration, and in its passage clears away mucus, or any thing else which may happen to be in the air-passages. The air may be driven out at once or at several expirations: in the latter case the expirations are continued often as long as any air can be expelled, and the emptied chest is again supplied by an inspiration accompanied with noise. It is obviously nothing but a sudden and exalted display of that sympathy which produces respiration, and is generally produced by nervous excitement of the bronchial membrane. We must not forget however, that, as a sympathy exists between the respiratory muscles and other parts as well as the lungs, so coughing may be induced by other causes than the irritation of the latter organs. Thus disorders of the viscera of the abdomen, especially of those which lie in contact with the diaphragm, frequently bring on a cough. A short dry cough is an invariable symptom of inflammation of the liver, whether acute or chronic, and accompanies the various tubercular and other obstructions in that organ. Disorders of the stomach are, also, often accompanied with a cough of the same dry and teasing nature, especially when that organ is over-distended with food, or is in the opposite condition of emptiness. In short, there is scarcely a viscus in the cavity of the abdomen, the irritation of which, in a state of disease, has not excited cough. Disorders of the spleen, pancreas, and even the kidneys, have all given rise to this symptom; and external tumours, attached to them, have had the same effect. (See Morgagni *Epist.* xix. art. 57, 58, &c.) Thus, in the ascites, or dropsy of the belly, the water; in tympanites, the air; in corpulency, the fat in the omentum; and, in pregnancy, the gravid uterus; have all, in some cases, the effect of exciting cough.

Our readers should bear in mind, however, that each of the causes here enumerated may injure the expansion of the lungs permanently, and excite convulsive action of the respiratory muscles only as a secondary result. But at present we are to confine ourselves to the discussion of those

those causes of cough which have their seat in the lungs. Accordingly, in the order *Pneumonica* we have six genera.

Genus I. *Bex*, [Greek.] Cough. Catarrhus, Cullen. Generic character—Sudden and violent expulsion of air from the lungs. There are three species.

1. *Bex humida*, or common cough, is too well known to require a particular description. There are four varieties.

a. *B. mucosa*, usually comes on with slight stuffing of the nose, and sense of fulness in the palate and contiguous parts; a flow of mucus follows, which unloads the secreting vessels, and a spontaneous cure occurs. Its nature is so generally allowed to be the same as *CATARRHUS*, that to that genus we must refer the reader for a full account of the severer forms.

β. *B. anhelans*. (*Dyspnoea catarrhalis*, *Cull.*) The chronic cough of old age. This also can be considered in no other light than a consequence of previous inflammation of the mucous membrane, and hence it were perhaps better to treat of it under *CATARRHUS*; but, as its very prolonged stage may be merely the result of increased exhalation, we shall not disturb our nosologist's arrangement. We take a description of it from the excellent work of Dr. Hastings on *Bronchitis*. He says, "The cough generally attacks the patient in the commencement of the cold weather, and sometimes continues throughout the whole of the winter months. The mucous membrane is so irritable, that the slightest change of temperature is sensibly felt. The respiration is always uneasy, and a peculiar wheezing of the breath is often present. The cough is most violent in the morning, the patient never failing to cough for a considerable time after he awakes; and the fit seldom goes off till the air-cells are unloaded of the secretions which have collected there during the night. Throughout the day the cough is often quiet for several hours together, and only comes on in consequence of increased exertion, or when the stomach is loaded with a hearty meal. The expectoration is copious, and usually consists of tenacious mucus mixed with a pus-like fluid. Sometimes, however, it is much less consistent, and it is white and frothy. The patient has seldom any pain in the chest, and if he have, it is slight and transient. Some symptoms indicative of disorder in the digestive organs are generally present. There is a sense of weight in the epigastric region, and the patient is frequently affected with pain in that part. The tongue is white and loaded, and the appetite fails. The pulse is quicker than natural, though rarely hard. The urine is often high-coloured, and not seldom scanty. The bowels are irregular. Such a combination of symptoms as that above stated is common; but we sometimes meet with chronic bronchitis which has existed for some time without producing much constitutional ailment. The patient is affected with cough, copious expectoration, and uneasy respiration; but there is no fever, and the pulse is not at all accelerated. These symptoms occasionally become the foundation of hydrothorax; but more commonly, as the warm weather comes on, the cough subsides, and the patient's health is restored."

The chronic cough is however much modified, according to the degree of bronchial inflammation which preceded it. When this has happened in an intense degree, we do not observe, says Dr. Hastings, the slow and gradual progress of the first stage, which is so remarkable when this disease supervenes under the forms of catarrh; for the acute inflammation has previously reduced the patient to the lowest state of debility, and the powers of life are sunk. The respiration is oppressed and laborious, the cough is frequent and harassing, the pulse rapid, and death is hourly expected. It however sometimes happens, that the violence of these apparently-fatal symptoms is in some measure subdued, and the patient gains some strength, so as to be enabled to sit up for a short

time. The cough is mitigated, the respiration is less laborious, and the wheezing is not so perceptible. The expectoration, however, is increased, though the matter expectorated is not of the same nature throughout: some part of it is tenacious, translucent, and cannot be diffused in water; other parts are opaque and purulent. Small quantities of blood are now also often intermixed with the sputa: the pulse loses its hardness, but becomes weaker and much quicker. We have generally combined with these unpromising symptoms increased emaciation, and inability to make any muscular exertion. Irregular sweats break out, and a flushing of the cheeks occurs.

In some cases, the untoward symptoms do not proceed further; they gradually amend. The expectoration diminishes, the cough is less harassing, and the respiration not so uneasy. The patient begins to gather a little strength, and the appetite returns. A change of air and favourable seasons are particularly advantageous at this period, and by these means the patient frequently recovers his health, although months sometimes elapse before such progress is made as enables us to speak with any confidence as to ultimate recovery. But, if no such alteration in the character of the disorder take place, a greater degree of general debility occurs, with a further loss of flesh. The cough becomes extremely harassing, the respiration more quick and laborious. The expectoration increases, and is more purulent in its appearance. The pulse is rapid. During the night general perspiration breaks out, and the face in the day is often flushed. The patient can still, for the most part, take a deep inspiration without pain, and lying down does not produce much increase of dyspnoea. He seldom complains of any shooting pain in the breast. Even from this almost hopeless state patients occasionally recover; but, when the disease has existed so long as to cause extreme emaciation and very copious pus-like expectoration, there is little or no hope. It sometimes happens that dropical symptoms come on before death.

In the *treatment* of this complaint, our first endeavour should be directed to moderating the force of the circulation, which is sometimes, though rarely, extraordinary; more frequently it will be merely necessary to diminish local plethora by leeches; after this, the irritable state of the mucous membrane may be checked by blisters and rubefacients, or issues, which may be steadily persevered in. It is a remarkable fact, noticed by Dr. Hastings, that, during the use of these counter-irritants, purulent expectoration is occasionally converted into the secretion of natural mucus.

Emetics have often been recommended in that variety of chronic bronchitis which appears in old people, and is denominated *tussis senilis*. The cough and dyspnoea are in such cases much aggravated by the accumulation of redundant secretion in the trachea, bronchia, and air-cells, which, by the action of vomiting, is frequently thrown up. Whenever, therefore, the lungs appear loaded with phlegm to any great degree, they may be relieved by an emetic: but this practice does not appear to have much effect in forwarding a radical cure. The tincture of meadow-saffron (*Colchicum*) possesses very remarkable powers in chronic cough. It allays the cough, promotes the flow of urine, and keeps up a regular alvine discharge. Moreover, from the power it possesses over the secretions, this medicine tends to relieve fever. The dose generally prescribed is twenty drops three times a-day. In some cases this must be diminished on account of its action on the bowels, severe diarrhoea being occasionally brought on by its use. Sometimes the patient is not affected by twenty drops: if this should happen, the dose may be gradually increased, until the bowels, the skin, or the kidneys, are acted upon. Patients rarely bear more than thirty drops three times a-day without being a good deal purged, which is not to be desired in prolonged cases of this disease. If there be much

much quickness of the pulse, eight or ten drops of the tincture of Digitalis, or foxglove, may be combined with this medicine; a combination by which the cough is more relieved, and the quickness of the pulse more permanently diminished, than by the separate exhibition of either.

While we have reason to suspect a congested state of the capillaries of the mucous membrane, we must persist in low regimen, the use of Digitalis, Colchicum, &c. as we shall mention when speaking of catarrh; but, when the complaint presents much irritation or relaxation of the secretory vessels, more stimulating medicines are useful. In having recourse to these, however, we must be careful not to stimulate too suddenly or too much, as we have to deal with a state of parts much disposed to resume inflammatory action. It is therefore advisable to begin with the mildest of this class. The powder of the bulbs of the *Scilla maritima* is often serviceable in chronic cough. Dr. Hastings exhibited this powder in conjunction with ammoniacum, as directed in the compound squill-pill of the London Pharmacopœia; and in old people of phlegmatic habits, when there is not much fever, he found it very useful.

With the same view Dr. Hastings has exhibited Cinchona chiefly in those instances that succeed to acute bronchitis, where the debility brought on by the acute attack is very considerable. In such cases, if the dyspnoea be not increased, the benefits arising from its exhibition are sometimes very apparent. The profuse perspirations and other discharges are not only restrained by this remedy, but it occasionally appears to alter the secretion from the mucous membrane of the lungs, and thus brings about a more healthy condition of that membrane, by invigorating its blood-vessels and restoring their natural tone. In these cases it may be combined with diluted sulphuric acid, which also tends to restrain the colliquative sweats that so often accompany this disease.

The use of mercury in some varieties of chronic bronchitis greatly assists the operation of other remedies; but it must be given in such a way as to produce the least possible debility of the system. We have before noticed the efficacy of this medicine in bronchitis arising from gastric and fibrous disturbance. But there are cases in which it is advantageous in chronic bronchitis uncombined with any disease in the abdomen. These sometimes occur after measles, when the shrillness of the voice indicates considerable affection of the mucous membrane lining the trachea. Indeed the great advantage we derive from calomel in croup would lead us to adopt it very constantly in simple inflammation of the bronchial membrane. But the debility produced by this disease, when of a chronic nature, forbids the use of a remedy so debilitating.

In the latter stages of chronic bronchitis, where the quantity of matter expectorated is very large, and the cough very troublesome, there is no remedy so powerful in allaying the uncomfortable irritation about the glottis as opium. But, valuable as this remedy is, it is not always free from inconvenience or danger, and consequently other remedies of this class have been proposed as substitutes for it. Dr. Duncan has strongly recommended *lactucarium* when opium cannot be given. He says, "Of all the medicines which I have employed for alleviating cough in phthisis, and indeed as a sedative in many other diseases, next to opium, I have found no article so beneficial as that substance which some have lately denominated lettuce-opium, and which I term *lactucarium*."

When inflammation is not apparent, inhalation of tar-water may be a gentle stimulus of some avail in altering the morbid action of the vessels. The strictest attention should be paid to the due performance of the digestive and excretory functions. The clothing must of course vary according to the season and situation. The patient

should endeavour to obtain moderate but not oppressive warmth. In this climate, flannel next the skin during the spring and winter months, by slightly stimulating its vessels, sustains the circulation on the surface, and thus tends to relieve chronic inflammatory diseases of the pulmonary system. When the disease has several times returned, and is easily brought on by vicissitudes of temperature, a removal to a warmer and more steady climate is proper. Under these circumstances a pure and dry air should be selected, as a hot situation conjoined with moisture is always to be avoided. The sea-air during the summer-months, in those who live in an inland situation in this country, sometimes invigorates the constitution, and restores the tone of the vessels on the bronchial surface, so as to prevent a return of the disease, where former attacks have left a susceptibility to inflammatory action.

The two following varieties are given on the authority of Dr. Good; but their separate existence, assumed on the different appearance of the fluid discharged, does not seem supported by practical writers. They are,

γ. B. acrida; the discharge thin, frothy, and saline; for the most part excreted with difficulty. It is in most instances an atonic affection of the lungs or of other organs that associate in their action. Sometimes an attendant upon the gouty; more frequently upon inebriates labouring under a diseased liver, to whom it is peculiarly troublesome in the morning.

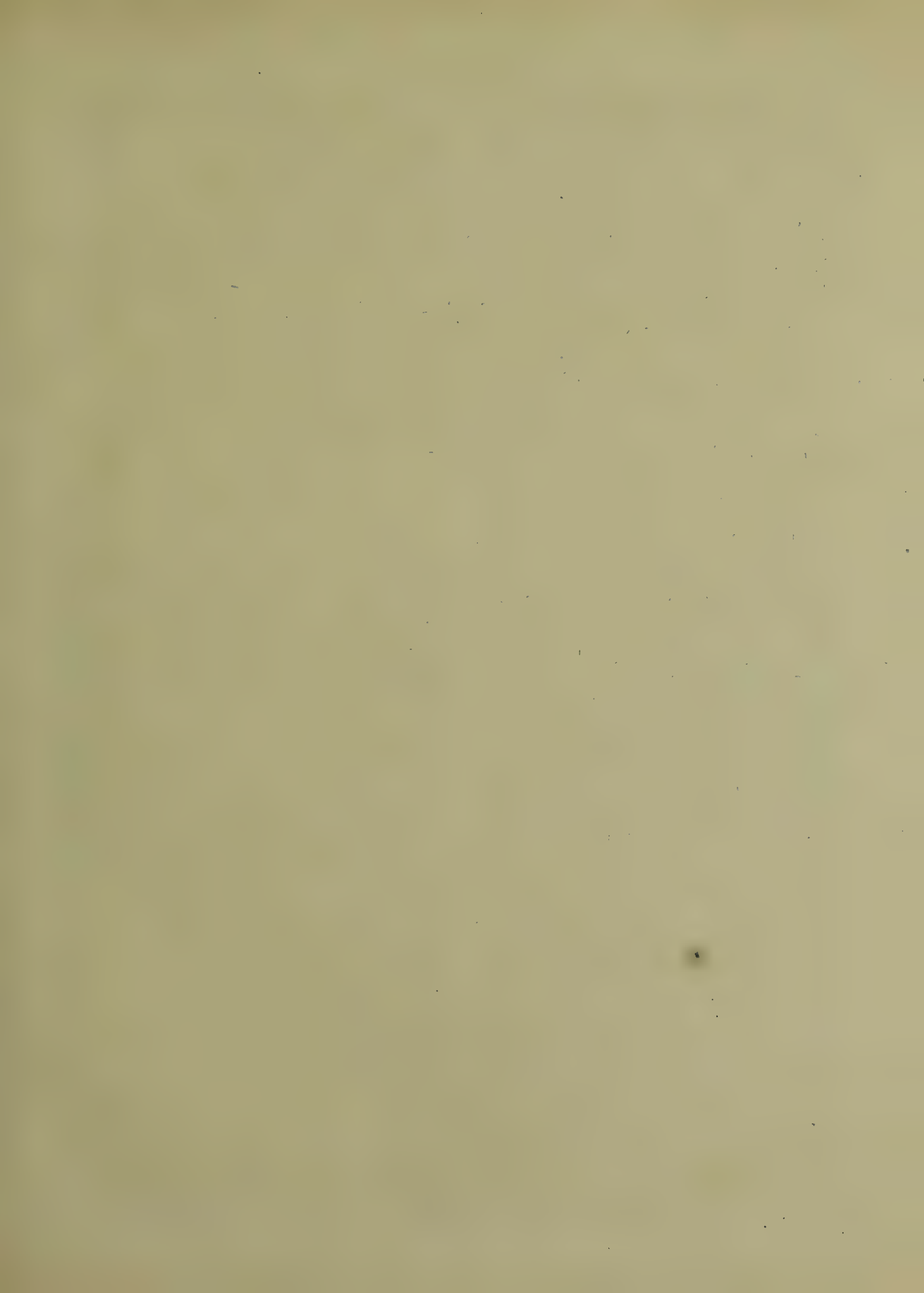
δ. B. periodica; recurring at stated periods: partly restrainable; discharge thin, but not acrid. Mostly common to persons of a nervous or hypochondriacal temperament.

z. B. sicca, or dry cough; i. e. unaccompanied with expectoration. Three varieties.

α. B. ingenerata; from irritation produced locally, as a scirrhus or calculous affection of the lungs. See Borelli, obs. 6. and Zacut. obs. 95.

β. B. extranea; from irritating materials inhaled from without, as minute particles of glass, lime-stone, and similar bodies; and common to glass-cutters, hewers of free-stone or sand-stone, workers of metals, and other mechanics.

In manufacturing towns, the preparers of yellow leather, and those employed in some parts of the china manufactory, are often subject to severe attacks of this kind. They are exposed during some parts of the process to inhale an air loaded with dust, which produces inflammation of the bronchial membrane of a chronic and peculiar nature. Dyspnoea is generally the primary symptom, which is often neglected for many months. If the occupation, under these circumstances, be continued, the disease is aggravated. The patient is not unfrequently seized with hæmoptysis, which is occasionally very profuse, and is accompanied with a great increase of dyspnoea, and severe cough. The pulse too becomes accelerated, and is generally hard and strong. The surface is hot, the tongue white, and there is considerable thirst: occasionally blueness of the lips and general lividity of the countenance also appear. It often happens that we can arrest the hæmorrhage by blood-letting and astringents; but in most cases of this description, the hæmoptysis is followed by very untoward symptoms. Whether hæmoptysis have come on or not, if the bronchia be still subjected to irritation, the cough increases, and is attended (for it is by no means true that extraneous substances always produce a dry cough,) with a copious expectoration of thick mucus, which is mixed with pus-like matter, and sometimes streaked with blood. "The patient complains of an uncomfortable tightness across the chest, and the dyspnoea does not abate. He loses flesh, the pulse becomes quicker, the tongue continues loaded, and there is considerable thirst. In by far the greater proportion of these cases, if the occupation be relinquished, these symptoms, by an appropriate treatment, disappear, and the patient is restored to health. In others the termination



termination of the disease is not so happy. The patient emaciates; he has profuse night-sweats, and the cough harasses him to such a degree as to prevent his resting by night. The expectoration is prodigious, and becomes much more purulent. The dyspnoea is greatly increased, the pulse is very quick, and there are regular evening exacerbations. The patient at length dies exhausted." *Hastings*, 275.

2. *B. verminosa*; from worms in the intestines, liver, or other abdominal organs. Common to children with large bellies, and pale emaciated countenances; and still more so to sheep labouring under the disease called rot, and whose livers are usually loaded with the *Fasciola hepatica*, or fluke.

3. *Bex convulsiva*, (*Pertussis*, *Cull.*) Whooping-cough; chin-cough; or more correctly kin-cough or kind-cough; literally "child's cough," from the German *kind*, a child. The cough convulsive, and suffocative, accompanied with a shrill reiterated whoop, and frequently with vomiting; contagious.

This malady commences as an ordinary catarrh. In the space however of a fortnight or three weeks, the symptoms undergo a change, and the disease exhibits a convulsive cough, in which the expirations are made with so much rapidity and violence, and are so long and frequently repeated, that the whole air seems to be expelled from the lungs, and the patient appears to be in danger of suffocation. At length a full and violent inspiration is necessarily made for his relief, which, from the unusual velocity with which the air rushes in, or from the spasmodic contraction of the glottis, produces a peculiar sound or whoop: these actions alternate until mucus is expectorated, or the contents of the stomach partially ejected. These evacuations commonly put an end to the coughing, and the patient remains free from it for some time after. But the duration of the paroxysm and the relief obtained are very different in different instances. Frequently the expectoration or vomiting takes place after the first or second coughing; but sometimes this happens only after several alternate coughings and whoopings; and, in very severe cases, the paroxysm ends in the complete exhaustion of the patient, without any discharge whatever.

The fits of coughing return at various intervals, rarely observing any exact period. They happen several times in the course of the day, and more frequently in the night. In general they come on without any obvious cause; but they are also brought on sooner and more violently by various sources of irritation, as by considerable bodily exertion, such as running, or even laughing, turning from side to side in bed, distending the stomach by food, or irritating it by such as is indigestible or acrimonious. Fretting and crying commonly bring on the fit. Though the paroxysms come on suddenly, the patient has commonly some warning, which excites his alarm; and, to avoid the violent and painful concussion which the coughing occasions to the whole body, he sometimes throws himself on the ground, or clings fast to any thing that is near him, or demands to be held fast by any person that he can come at, and will even run across the room for that purpose, with terror and supplication expressed in his countenance. In almost every case of the disease, dyspnoea is present. Frequently there is a difficulty of breathing, not only immediately before and after the fits of coughing, but, in the more severe cases, the patient pants on the least exertion, as if he had run a race, or performed some feat of bodily strength.

When there is little expectoration, and that of a thin mucus only, the fits of coughing are violent, and continue long: but, as the expectorated matter soon becomes considerable and very thick, as it is more readily expectorated, the fits of coughing are of shorter duration. If the fits are violent and long continued, they necessarily interrupt the free transmission of the blood through the lungs, and consequently the return of blood from the

head. This gives rise to turgescence and suffusion of the face, and sometimes occasions hæmorrhage from the nose.

Sydenham speaks of the whooping-cough as unconnected with fever; Dr. Cullen remarks, that "It is constantly in some degree present; but with evident exacerbation towards evening, continuing till next morning." (*First Lines*, mcccxcx.) Dr. Watt also observes upon this point, "as far as my experience goes, I am disposed to believe, that, even in the mildest cases; as long as the kinks (paroxysms) continue, there is always some part of the day when the presence of fever can be detected. It may be so slight as hardly to deserve notice; but still, to an attentive observer, who has opportunities of seeing the patient day and night, it is abundantly obvious. I have remarked it even in those favourable cases, where the appetite continued good, and where the patients seemed to suffer little or nothing in their general health."

Indeed the phenomena of increased heat and active pulsation have been so generally noted, that it seems surprising that they should have escaped Sydenham's (usually) close observation.

With regard to the nature of whooping-cough, it seems evidently a species of bronchitis, or inflammation of the mucous membrane of the lungs, which has these circumstances peculiar to it, that it elicits a secretion possessing contagious properties, and that it is connected with spasmodic action of the muscles of the glottis and of the chest. The low degree of febrile irritation it sometimes produces will prevent many from according the term inflammation to the malady. This is however of no consequence; the presence of diseased secretion no one will deny; and that the irritation this arises from is very prone to bring on unequivocal symptoms of inflammation, is equally indisputable. Dissection of fatal cases has invariably shown redness and distention of capillaries on the nervous membrane, or effusion of pus or flakes or coagulated lymph. In some cases disorganization has been propagated to the substance of the lungs. In some very young subjects, indeed, suffocation has occurred from the long irritation of the mucus having kept up coughing till the chest was emptied of air, and the glottis has been closed, first by the spasm of its muscles, and afterwards by the pressure of the atmosphere; and here dissection has furnished little evidence of inflammation. The course and event of this disease are very uncertain. In the mildest form in which it appears, it commonly continues from one to three months; and, in the more severe, considerably longer. Even after it has nearly or wholly ceased, an accidental exposure to cold occasions a relapse.

The treatment of *Bex convulsiva* follows clearly out of the views before taken of its nature. In the first place, we have to guard against inflammation spreading to any alarming extent. In proportion, therefore, as the dyspnoea and fever are severe, and as the patient is strong and plethoric, it becomes necessary to employ blood-letting, and even to repeat it according to the urgency of the circumstances. Even in more delicate and younger children, some evacuation may be necessary by means of the lancet, in the commencement of the disease; and local bleeding, by leeches applied to the chest, may be resorted to, where general blood-letting is deemed inadmissible. The difficulty of the transmission of blood through the lungs should be watched, and early attacked by this efficient remedy, or the disease will often baffle all the subsequent efforts that can be made. Moreover the treatment of dyspepsia should be kept closely in view. The inflammation of the membrane, and the convulsive action of the respiratory muscles, are of course connected with nervous irritation; and hence we must be careful that all excitement of the nervous system be withheld. Abstemiousness and the use of purgatives have the two-fold effect of inducing a right action of the chylipoietic viscera, and of diminishing inflammation.

Every practitioner must have observed the almost constant derangement of the excretions of the bowels, under any acute disease in children, but more especially under those affecting the lungs; and the relief obtained, even in respect to the original disorder, by regulating the alvine discharges. It is important, therefore, when the disease assumes an inflammatory type, to keep up a constant free state of the bowels from the first, by the repeated use of laxatives, especially of those which contain a portion of calomel. According to the state of actual constipation, or of mere derangement of the excretions, the purgatives will be used more actively at intervals, or more constantly in smaller doses.

Of all other remedies, *emetics* appear to be among the most useful in this disease; for they not only determine the fluids to the surface, and still more effectually relieve the lungs by promoting its secretions, but they also tend to interrupt the recurrence of the spasmodic affections.

As a secondary expedient, with a view to obviate or remove inflammatory determination to the lungs, when it occurs in this disease, the application of blisters is often beneficially resorted to. They do not, however, appear to act so beneficially in the relief of the pain and dyspnoea attending this disease, as in ordinary cases of catarrh; and ought not to be relied on, where the inflammatory congestion in the lungs is considerable. They are most beneficial, when this inflammatory condition has been already partly subdued by the more active evacuations.

The medicines generally in use in these complaints are the same as in the common forms of bronchitis; viz. digitalis, colchicum, &c. The alkalies, soda and potash, have also great influence on this complaint. To allay the nervous excitation, conium and hyosciamus may be advantageously prescribed; the warm bath should be used occasionally, and rest absolutely enjoined; for, whether we view the mere symptom of dyspnoea, or extend our researches to the probable cause of its occurrence, we shall find ample reason to induce us to keep the lungs in as tranquil a state of action as possible. It is in this way indeed that bleeding in all pulmonary diseases must be principally useful; viz. that the diminished quantity of blood in the system calls for less activity in the respiring powers.

These rules apply, however, only to severe cases. In the usual mild forms, a regulated diet, pure air, and medicines of an aperient nature, with an occasional emetic, will accomplish all that is required in the first stage of the disorder.

In the after-stages, when the operation of the contagion may be supposed to have ceased, and the convulsive cough to be continued through the influence of habit, a different indication arises, and different remedies are to be employed. That the power of habit contributes to keep up the disease, after the influence of contagion has declined, is to be inferred from the circumstance that the symptoms have disappeared, like other nervous symptoms, in consequence of the impression of terror, or other strong emotions of the mind; which agents cannot be supposed to have the power either of correcting or expelling a morbid matter from the constitution, but which are evidently suited to change the state and habits of the nervous system; or, at all events, of inducing a change in the merely habitual disorder of the secretions. With this view, the inhalation of tar-vapour may be resorted to with advantage. Some authors have advised a variety of tonics; but their mode of action is obscure, and general experience has not confirmed the original accounts of their efficacy. A stimulant more congenial to the bronchial membrane is country air. Indeed change of air has been very generally deemed the most effectual remedy in the advanced stages of the disease. And so strong has this impression been made upon the public, that it has been generally believed, that any change of air, even from a better to a worse, is beneficial.

This, however, seems improbable; and the fact perhaps is as Dr. Watt has stated it: "It no doubt frequently happens," says that writer, "that a child is better on being taken from one place to another, even when the air in the latter place is supposed to be worse than the former. Here, however, I should be disposed to attribute the good effects, not to coming into a more impure atmosphere, but to the child's *being abroad*, any atmosphere being better than confinement to the house." This advice is not of course meant to apply to any but cases in which the inflammatory tendency of the cough is perfectly subdued.

But we must not forget to mention, that a respectable author has opposed the notion that change of air is always beneficial to patients of whooping-cough. Dr. Robertson has seen some lamentable instances to the contrary. He thinks the removal should be but a short distance from home, "and the new abode should be chosen in every thing resembling the former one," avoiding elevated and exposed situations, as well as those that are too low and damp, or within the range of exhalations from stagnant waters or flooded meadows. Inland situations are preferable to the coasts. The advantages of change of air, he thinks, may sometimes be obtained by change of rooms and habits, at home. Upon the whole we are of opinion, that, as a general measure, change of air, or, at any rate, being much in the air, is advisable; but, like other good rules, it is liable to some exceptions.

Dr. Archer, an American physician, advises to relieve the whooping-cough by vaccination. This, of course, can be resorted to only under particular circumstances. Dr. A. says, "I have vaccinated six or eight patients that had the whooping-cough, and in every case it has succeeded in curing this most distressing disease. The whooping-cough does not come to its height in less than six weeks from its commencement; and then, when a favourable termination is expected, the declension of the disease is gradual, and it does not terminate in less than six weeks more. To arrest this afflicting disorder in its progress, I would recommend vaccination in the second or third week of the whooping-cough, i. e. when the symptoms of the whooping-cough are fully ascertained, then to vaccinate. Should the convulsive cough be violent, I should immediately vaccinate; being well assured that the distressing symptoms of the whooping cough are checked by vaccine disease. The termination of the vaccine disease will be the termination of the whooping-cough."

Genus II. *Dyspnoea*, [from *δυσ*, bad, and *πνέω*, to breathe.] Anhelation. Permanent difficulty of breathing, with a sense of weight on the chest.

Dyspnoea is produced by so great a variety of causes, and from its very nature is so evidently symptomatic, as in fact Parr and the best systematic writers have always considered it, that we shall refer our readers to the original maladies which give rise to its varieties for the necessary details concerning it.

It may be practically useful, however, to remark, that an unremitting difficulty of breathing is common to some old persons, in whom its long continuance, and the absence of other symptoms, forbid us to suppose any organic change in the structure of the lungs or contiguous viscera, or indeed any merely mechanical obstruction, to have occurred. It differs but in a slight degree (as far as our own opportunities of seeing it have extended) from asthma: the point of difference between the two complaints is merely the regular and continuous disorder of respiration in the former disease, as antagonized to the paroxysms or exacerbations of the latter. There are two species.

1. *Dyspnoea chronica*, or short breath: breathing uniformly short and heavy, mostly accompanied with a cough. There are five varieties.

α. *D. extranea*, (*D. terrea*, *Cull.*) From calculous or other earthy secretions in the substance of the lungs thrown up by coughing. See *Catarrhus*, in this article.

β. *D. phlegmatica*, (*D. aquosa*, *Cull.*) The habit phlegmatic or cachectic, with scanty secretion of urine, and mostly œdematous extremities. See *Hydrops*, in this article.

γ. *D. pinguedinosa*, or purfiness; accompanied with oppressive fatness. See *Corpulence*, in this article.

δ. *D. organica*, (*D. thoracica*, *Cull.*) From deformity or organic defect, or injury.

ε. *D. vaporosa*; from the mischievous action of metals or other poisons.

2. *Dyspnœa exacerbans*: subject to sudden and irregular exacerbations: the breathing deep, stertorous, acute, and suffocative; relieved by an erect position. This, when not symptomatic, is the same as the following genus, varying from it only in its acuteness and violence: it requires a similar treatment. Found, also, under the one or the other species, as a symptom in aneurisms, polypous concretions, and other affections of the heart and larger vessels; in enlargements and other affections of the abdominal viscera; in empyema, hydrothorax, worms, peripneumony, bastard peripneumony, small-pox, and occasionally in severe attacks of intermitting fevers.

Some authors have explained the term *Catarrhus suffocativus* (the name by which this species is called by Baglivi and others) as synonymous with croup.

Genus III. *Asthma*, [probably from *αω*, I breathe.] Difficulty of breathing, temporary, recurrent; accompanied with a wheezing sound, and sense of constriction in the chest; with cough and expectoration. These generic characters are subject to great variations. *Asthma* has of late years been traced in a very large proportion of cases to organic changes in the thoracic viscera. As there seems good reason, however, to believe, that the majority of asthmatic patients (perhaps nearly all where the complaint is not of long standing or of peculiar violence) suffer from functional impediment only, we confine ourselves to the consideration of *asthma* of this latter kind.

The exact nature of *asthma* is not settled. Among the old writers, Floyer paid much attention to this disease, with which he was severely afflicted; but his opinions as to its cause are so much tainted with the humoral doctrines, that it is useless to discuss them. He has left, however, a very good description of the symptoms of one kind of *asthma*. Cullen supposed it to consist in a spasmodic constriction of the muscular fibres of the bronchia, preventing the free ingress and egress of the air, and consequently the due expansion of the lungs. This opinion, however, is not reconcileable with the known structure of the bronchia, and has accordingly been laid aside. The same author mentions several varieties of it, as *exanthematicum*, *simplex*, *phlegmaticum*, *plethoricum*, &c. arising from remote and distinct causes. These Dr. Good has adopted in his *Nosology*; but the simplified arrangements of practical writers seem to warrant the dismissal of such divisions. Dr. Bree, in the best treatise on this subject which we know of, considers *asthma*, properly speaking, and as distinguished from mechanical pressure of all kinds, whether tumors, concretions, or other consequences of inflammation, to be a material irritant applied to the air-cells of the lungs, and exciting the contraction of the respiratory muscles for its removal. To take in his just and more extended view of the disease, we quote his own words. He says, "If it be necessary to define the disease, I would say, agreeably to the principles of the following inquiry, *Asthma* is an excessive contraction of the muscles of respiration, without acute fever, excited by an irritation in some of the viscera whose functions these muscles are intended to serve. Under this generic definition are comprehended all affec-

tions not febrile, attended by an uncommon action of the muscles used in respiration; the influence on these muscles being the same in kind, though distinct by situation and quantity of force, as it may exist in some of the lower viscera, or in the lungs."

Now, as far as regards the lungs, the material irritant productive of *asthma* is supposed to be a mucous secretion. Dr. Bree deduces, from a vast store of ancient and modern authors, observations tending to show, that the paroxysm of *asthma* is almost invariably connected with, and terminated by, the expectoration of mucus or serum: and he infers, that the impediment to respiration arises from the gradual collection of this fluid in the air-cells. There it may exist for a certain time without producing disturbance; but at length the filling up of the remote terminations of the bronchia impedes the changes of the blood, and calls into forcible action the respiratory muscles; whereas the lymph accumulated in the air-cells is rather oppressive than acrimonious, and the sensibility of their membrane is less than that of any part of the bronchia and trachea. Moreover the vesicle cannot collapse in the attempt at expiration, because its cavity is filled with lymph. Hence Dr. Bree thinks arises the true cause of a paroxysm, "beginning with little or no cough, and that seemingly impeded;" but, after the fluid has been lessened by absorption, still more may be discharged in the vapour of expiration, and, the elasticity of the bronchia being thus restored, the much-desired spitting of mucus may take place.

We copy from this author the following lucid account of his opinions as to the production and nature of this secretion. "It is obvious, that mucus could not have been expectorated without a previous secretion of serum. But, as this mucus is copiously discharged, the effusion of serum must have been considerable: it may be therefore proper to inquire in what state of the lungs such an effusion can take place. It is known that the glandules of the trachea and bronchia are subject to inflammation, and that in *catarrh* an excretion of mucus is considerable from this condition of their vessels; but practitioners have generally testified, that pyrexia and symptoms of inflammation are not present in spasmodic *asthma*. We must then look farther for the source of this copious secretion, and we shall find it in the vessels with exhalent orifices at the extremities of the air-pipes; the construction of which is not complex like that of the mucous glandules; and they have not follicles in which they may deposit their lymph till it be excreted. There are many reasons for believing this to be the principal, if not the only, source of the copious expectoration in *asthma*."

In consequence of the condition of the habit in *asthma*, the matter of heat is not given out in this as in other instances of glandular secretion. The capillary vessels are passive in this disease; and, not contracting so narrowly as to detain the gross part of the current, they permit lymph to pass instead of exhaling only a thin vapour.

It seems that, in the early periods of *asthma*, and while serum is not very abundantly effused, a quickness of respiration commonly precedes the paroxysm, and the expirations carry off, in vapour, that fluid from the cavities: the action of the absorbents is probably, also quickened, so that, by the united powers of these instruments, the balance may be restored between absorption and exhalation.

There can be little difficulty in according to Dr. Bree, that this explanation is very plausible and satisfactory, and that irritation of mucus on the nerves of the bronchia is no doubt in many cases the proximate cause of *asthma*. Every one must allow, however, that any circumstance inducing an irritable state of the nerves will as surely produce the disease as the secretion does; and it is of little consequence what irritant is applied to these nerves, since we find cough and difficulty of breathing produced by a variety of ailments, as in the liver, womb, kidneys, &c. We therefore consider *asthma* the result of irritation.

irritation of all those parts which hold a sympathy with the respiratory muscles. Indeed Dr. Bree's opinion does not differ widely from this, as he has allowed that asthma frequently has its origin in bilious and gastric disturbance. A further evidence in favour of this notion is, that some asthmatic patients do not, notwithstanding violent efforts, expectorate serum or lymph.

The wheezing noise, and the straitness and anxiety, gave Cullen reason to suppose that a constriction of the bronchiæ took place in asthma. Dr. Bree thinks their symptoms may be more satisfactorily traced to distention of the stomach and œsophagus; when in the former part, preventing free inspiration by hindering the descent of the diaphragm; when in the latter, narrowing the bronchiæ by pressure. But the most dyspeptic patients of asthma do not invariably suffer the above symptoms in the highest degree. It seems clear therefore, that, though contraction of the bronchia is almost impossible, a partial closure of the glottis may occur from spasm of its muscles, and produce the phenomena in question. Indeed these muscles are as intimately involved in sympathy with the bronchial membrane as the external muscles of respiration, and consequently are liable like them to have this sympathy when kept up for too long a period by irregularity or disturbance in the times of their contraction and relaxation. We now come to speak more particularly of the two species into which Asthma is divided.

1. Asthma siccum, dry, nervous, or convulsive, asthma: paroxysm sudden, violent, and of short duration; constriction hard, dry, spasmodic; cough slight; expectoration scanty, and only appearing towards the close of the fit.

We have before stated that the convulsive efforts of the muscles of respiration in this complaint may be called into play by irritation of any part of the body the nerves of which have influence over those muscles in a state of health; so that dyspepsia, or disturbance in the liver or in the bowels, or even in the uterus, may give rise to difficulty of breathing by impeding the descent of the diaphragm, or by increasing or diminishing the sympathetic motion of any of the other respiratory muscles; and, as the actions of the former viscera are periodical in health and in disease, the periodical occurrence of nervous irritation will influence in the same irregular mode the dyspnoea, and cause asthma.

It is in asthma arising from these abdominal irritations that many anomalous symptoms occur. General nervousness, itching of the skin, flushes of heat, diabetes, hysteria, &c. are of no uncommon occurrence; but the complaint is too strongly distinguished from any of those complaints to render us liable to mistake in our diagnosis.

From what has been before stated, it seems that the causes of asthma are, nervous irritation of the bronchiæ, affecting by sympathy the muscles of the chest and glottis; or the same irritation of other nerves similarly connected. The second causes are embraced in the extensive views we have taken of dyspepsia: the former can arise only from the peculiar state of the bronchial exhalants already mentioned, or the bad state of the air inhaled.

It remains therefore only to speak of aerial irritation. In the first place, it must be remarked, that the state of the bronchial membrane will much alter the nature and force of the impressions it receives from the air. Dr. Bree says, the sensible membrane of the trachea is naturally defended by its lymph from the attack of aerial acrimony, as far as the condition of bodies varying in sensibility to external impressions will admit of this defence. Other things being equal, this guard is sufficient, and answers the purpose for which it was designed. But, if the secretion of lymph from this membrane be deficient, and the absorbing power be active, the surface of the membrane may be irritated by a thousand imperceptible points which the air conveys in the act of inspiration.

The state of air most congenial to the asthmatic patient

appears to be that of density, a state which more than counterbalances the ill effects of foreign particles with which it is often loaded; and hence, in the majority of cases, the air in low situations is more favourable to the lungs of asthmatic patients than that of the high lands. It seems moreover, that, even if impurities of the air ought to be considered as the aerial cause of asthma, these are more strongly applied to the lungs in rare than in dense states of the atmosphere, since in the latter they are suspended at an altitude superior to that of the human frame.

Dr. Bree accounts for the good influence of dense air on asthma by stating, that a certain weight of air is necessary to inflate the lungs fully; and that, the greater the force of pressure thus applied, the more perfectly will the aerial particles required for the blood be forced through the bronchial membrane, or through the collections of serum which its tubes may contain. He mentions experiments on animals, in which the absorption of oxygen was effected with great speed when artificial pressure was applied. He says, moreover, that, "the usual density of the air being lessened, a certain volume will not only possess less weight, and press less against the membrane, but it will also contain less oxygen to enter into the new affinity."

So much for the state of the air as far as regards its immediate transmission to the bronchial membrane. Its temperature exerts itself with equal power on the skin. Cold and moisture check cutaneous perspiration, when the body is under their influence: there is therefore additional fluid circulating to the pulmonary exhalants, and there is less expiration of vapour in breathing; so that we have, in this state of the atmosphere, an exciting cause of asthma as frequently as in that of moisture with rarity of air. Cold alone will sometimes, but not commonly, excite the paroxysm; for there may be states of the atmosphere inducing great torpor on the pulmonary exhalants, without the presence of aqueous vapour, or moisture. Thus, the east and north-east winds would exert the beneficial influence which coldness, simply united with density of air, has on respiration, were it not that these penetrating winds check cutaneous perspiration, and thereby induce another cause of asthma by this matter being turned upon the lungs. So on the other hand, in summer and autumn the atmosphere is rare, and so far hostile to the asthmatic; but, to lessen this inconvenience, he enjoys the grateful sense of a warm skin, and general perspiration, as the circulation is determined to the surface during these seasons. "If (says Dr. Bree) it were not for this diversion in favour of the lungs, the patient would perceive much more of his complaint than he really does in the warm season; for many circumstances operate against him then which do not in winter." The exhalation from the pulmonary vessels, decidedly increased by exercise or other causes, will oftener be profuse in the hot months; and be more suddenly followed by the coldness, which is known to come upon surfaces in proportion to the evaporation made from them, than happens at cold periods of the year.

This view of the *modus operandi* of the atmosphere is more consonant with legitimate deduction from facts than the old notion that vapours in the air were all the offending agents to be looked to, since it is notorious that many asthmatic people live better in the crowded and smoky precincts of a large city than in the open air of the country. Sometimes, indeed, fumes, dust, &c. are easily proved to lead to, or aggravate, an asthma; but generally we cannot well consider aerial impressions to be the exciting causes of the paroxysms of this malady, since, such impressions being constant, the cough and difficulty of breathing would be equally so. We must therefore conclude, that the particles of matter contained in foul air accumulate in the bronchia, and assimilate with its secretions, until their bulk brings on the dyspnoic paroxysm.

We shall transcribe Dr. Brée's account of the symptoms of this complaint. It bears a close resemblance to the noted description given by Floyer, but is perhaps more amply detailed. "The attack of a paroxysm of periodic or convulsive asthma is preceded very generally by dyspepsia, and the circumstances which occur to a relaxed habit. This condition of the body may have prevailed for months or years before it takes the additional form of asthma; but, when that disease appears, dyspepsia never fails to be aggravated, and to show itself with violence before the fit.

"The first symptoms are flatulence and distention of the stomach and bowels; a heavy pain over the forehead and eyes; eructation of wind, with water which is sometimes insipid, at others sour. When the evening approaches, this weight over the eyes becomes more oppressive, and the patient is very sleepy. Occasionally, if he be particularly animated by company and conversation, the drowsiness does not take place, but a shortness of breathing is perceived, and soon after much anxiety of the præcordia, with great restlessness. The presence of company then becomes irksome, as it seems to increase a certain heat of the body, a want of free respiration, and an irritability which repels the most cautious attentions of friends. Frequently at this period there is a tingling and heat in the ears, neck, and breast, and a motion to expel the contents of the bowels is attempted with some violence, and with great uneasiness of the abdominal muscles. When an asthmatic feels these warnings, he may be convinced that his enemy is at hand. At some uncertain hour before midnight the patient becomes suddenly sensible of the increased violence of the disorder; most frequently after a slumber in bed he awakes with great difficulty of breathing, and he feels the necessity of a more erect posture of his body. Inspiration is performed with great effort of the muscles, but is never perfectly deep, and the diaphragm seems to descend with great difficulty against an opposing force. There is now a desire of free air, speaking becomes distressing, and the irritability of the mind continues, but is not so acute as in the approach of the fit. There is a great straitness of the chest, and a wheezing sound in respiration. An inclination to cough shows itself, but this is small and interrupted. The pulse is increased in quickness a few strokes, but without hardness. There is no preternatural thirst, unless, as often happens, the fit be excited by indigestible matter in the first passages. There is a propensity to make water, which is copious and pale, and frequently discharged. After some hours of distress the patient perceives his anxiety to be less, the breathing is less quick and laborious, the inspirations are longer and more full, the expirations are still attended with wheezing; the pulse is not so quick, but more full; irritation is less acute. The cough probably brings up a portion of phlegm, and a very sensible relief follows that excretion. Then the tranquil state of the feelings introduces sleep, but not unaccompanied by wheezing, which continues almost always through the first night, and until, by the progress of the fit on the second or third day, a more considerable expectoration of mucus takes place.

"The second day is ushered in by a remission of the symptoms, which the patient perceives from the time of awaking in the morning. No change of posture is, however, yet made with impunity; and particular distress affects him, if he engage in the fatigue of dressing whilst the stomach is empty. The pulse will be accelerated more than it was in the acmé of the paroxysm; and motion must frequently be suspended, or a vehement agony for breath will certainly come on. During the day, if no particular hurry occur, the breathing becomes gradually more free till the evening; an inexperienced asthmatic even flatters himself that his disease is leaving him, but he finds at the approach of night that he must sustain a new attack. The paroxysm recommences with the usual symptoms, and the night is passed nearly as the

former; but the sleep is more perfect, and productive of more relief.

"The third day, the remission is more complete; there is some additional expectoration; and bodily motion is performed with less distress, but still with great inconvenience. After the paroxysm has been renewed in this manner for three nights, the expectoration generally becomes free, but there is no certain termination of the fit at a fixed period. However, except in particular cases, it goes off after a few days; and, as the daily remissions become more perfect, the urine is higher coloured, and in smaller quantities; the expectorated mucus is more copious and digested; strength of pulse and vigour of action increase, and good humour again enlivens the mind.

"The expectorated mucus has been said to be streaked with black, or to have a blackish tinge; and this appearance certainly prevails in many instances, but not invariably. The taste of the expectorated mucus is also equally uncertain; it is sometimes sweetish, but more frequently it is saline, and it is occasionally coloured minutely with blood. There is a considerable variation in the periods of the accession of the paroxysm, and in its duration, in the intervals of the fits, the quantity of mucus expectorated, and the freedom of that discharge. These circumstances of the disease will be influenced by the predisposing causes, and by occasional accidents." Dr. Brée's Practical Inquiry into Disordered Respiration.

Asthma may occur at any age; but except where there is a mal-conformation of the chest, it seldom attacks in early life. It usually afflicts persons of mature or advanced age. People who follow certain occupations are more liable to it than others; such as millers, maltsters, stone-cutters, wool-combers, flax-dressers, &c. Many of these instances, however, of short breathing, belong rather to Dyspnoea than to Asthma. Although the attacks are so severe and distressing for the time, yet in the intervals the patient commonly enjoys a tolerable share of health, and is able to engage in the pursuits of business or pleasure, according to his station in life; nor do they seem, in numerous instances, to have much effect in shortening the natural period of human existence, many asthmatics having been known to live to the age of seventy and upwards. The disease, however, terminates at length in peripneumony, consumption, dropsy, lethargy, or apoplexy.

In the treatment of asthma, we have two purposes to effect; viz. to relieve the paroxysm on the one hand, and to rectify the morbid condition of the pulmonary organs on the other.

We have seen that the paroxysm is most frequently excited by distention of the stomach and bowels, or by the accumulation of irritating secretion in the bronchial tubes. Hence we must labour to evacuate the offending matter from each cavity; we must further allay, by antispasmodic medicines, the irregular action of the muscular parts. An emetic is the first remedy to be applied. By gentle vomiting we may obtain some knowledge of the state of the first passages; and the paroxysm will go on with milder exacerbations, if irritating matter be removed from the stomach and duodenum. Further than this, nausea and vomiting discharge the subtil and acrid particles which have been received in inspiration, by promoting such a secretion of lymph as may envelope them, and excite expectoration; besides which, this dilution probably defends the membrane from further irritation. Afterwards a draught with one ounce of distilled vinegar, and from one to three grains of pulv. ipecac. in pure water, may be taken every four hours, as a means of determining to the surface of the body, and promoting absorption and exhalation. If costiveness prevail, it will be necessary to remove it, by the use of rhubarb or infusion of senna; but we must avoid full purging. If acid eructations are frequent, then, instead of the acetous draughts with ipecac. chalk or magnesia usta in a draught

of mint-water, with the same nauseating ingredient, will answer better. Dr. Bree states, that "it has happened in several instances, after various means intended to mitigate the distress of the fit had failed, that the Rubigo ferri, or carbonate of iron, in doses of ten grains every four hours, appeared most clearly to remove the paroxysm." This effect can only, he thinks, be accounted for by looking to the inert condition of the stomach and lungs, and to the languid state of the circulation in the thoracic and abdominal viscera. He adds, "Whatever in such circumstances can hasten the passage of the blood through the lungs, and promote a quicker return to the heart from the lower viscera, must be useful in the intention of present relief, as well as of actual cure." It is in aid of this acceleration of blood to the lungs that inhaling oxygen, as recommended by Dr. Beddoes, is an useful measure. See *Therapeutics* in this article.

"In the morning, the patient should take clear coffee as soon as he awakes, which should be repeated at intervals with dry toast; and this drink, which seems to act medicinally on asthma, may be administered, during the remission also, with a few drops of tinct. opii, every three hours, the nauseating draught being suspended between the exacerbations. At the beginning of the second exacerbation the nauseating draught should be repeated, at first with a sufficient proportion of ipecacuan to excite puking, and afterwards with a less dose that may only occasion nausea. In the second remission, the plan pursued in the former should be resumed. The third exacerbation will probably be mild, so that the ipecacuan draughts may be suspended, or they may be united with æther and tincture of columbo in place of the ipecacuan. With this plan there will appear on the third day a considerable tendency to expectorate, which should be promoted by ammoniac, and vinegar of squill with tinct. opii, or with volatile salts. Ammoniac is called an expectorant; but the patient, before this period, too frequently takes this nauseous medicine without use." Bree, p. 283. 5th edit.

From this time we have to turn our attention to the cure of the complaint during its remission; and what can be effected for this purpose may be stated in a very few words. It is scarcely necessary to mention the removal of the exciting cause. If bad air, a removal to a better situation; if gastric or intestinal disturbance, (no doubt the primary cause in the major proportion of cases,) a rigid adoption of the treatment of Dyspepsia (which see) must be followed. We may remark here, that, having fully entered into the consideration of diet, &c. under that head, we shall feel it unnecessary to resume the subject in our account of every one of those diseases to which similar regulations are applicable.

In asthma these regulations should be fulfilled with much diligence and attention; but they will always require accommodation to individual cases, particularly to patients with nervous ailments. We may remark, that cordial and stimulating bitters are particularly indicated in asthma. These remedies will require a long continuance in their use, and frequent change of the varieties.

With regard to the management of the sanguineous system in this complaint, it is to be borne in mind, that a great number of cases are on record in which it was connected with organic changes in the thoracic viscera. To prevent therefore such occurrences, it is of importance that we by no means neglect to moderate the force of the circulating powers. In effecting this purpose, we must be guided by the pulse, with little reference to the nosological division of disease.

Unless from the above consideration, bleeding should be cautiously resorted to. Dr. Bree states, that, "under considerable evacuations of blood, the sudden depletion of the vessels may leave their coats without the stimulus necessary to produce a contraction equal to the space

which the blood had occupied; the heart will participate in the injury, and will also be deficient in vigour of contraction. If, therefore, blood be taken, it should be drawn from the vessels at intervals, and in small portions, which would allow of a contractile power being exerted, in proportion as the vessel loses its contents; and so much fluid would not finally be taken away as to leave it without the stimulus of distention, so essential to its return of health." He says also, that, "before the pulmonary vessels have relieved themselves by their exhaling orifices, blood may possibly be drawn with some advantage; but, when effusion has taken place, a certain debility follows, and a loss of contractile power in the vessels."

The same purpose is also effected by digitalis, though the good effect of this remedy is attested by some in cases where no extraordinary degree of pulsation was manifest in the arteries. The action of this remedy is by no means well understood. It is of much importance to excite the minute parts of the circulatory system, for the purpose of unloading the great vessels. From what we observe in other complaints, we should be inclined to use the warm bath; but Dr. Bree reports unfavourably of it: it seemed, in this one case especially, to aggravate the malady. Of the cold bath this author, in common with many others, speaks favourably. The first effect of the bath seems to be painful and injurious; but, when re-action follows, (and it should only be used when this does follow,) the cutaneous capillaries are excited, and thus unload the circulation; independently of which, they communicate a sympathetic vigour to the pulmonary exhalants.

The tendency to spitting should be promoted by the exhibition of expectorating medicines; such as ipecacuanha, oxymel of squill, and ammoniacum. Of the first of these, not more than two or three grains should be given for a dose, so as to excite, in this stage of the disorder, merely nausea, but not vomiting; the two others should be joined together in the form of a draught or mixture, with or without the addition of æther.

A dry and pure air, but not that of an elevated situation, is in general best suited to asthmatics; there are, however, as before stated, frequent exceptions to this observation. The bowels should be kept regular, by rhubarb and aloetic aperients. Small doses of calomel may be given with great advantage, in many cases; and especially where the asthmatic affection is connected with a disease of the skin. Whenever the patient's feelings warn him of an approaching attack, he should take an emetic, and after its operation an opiate; and at all times he should encourage expectoration; but oleaginous emulsions and sweet mixtures should be prohibited. Issues have been recommended by some practitioners for lessening the frequency and violence of the paroxysms. It is said that king William continued perfectly free from his asthmatic complaint, during the whole of the time that the wound he received on his shoulder, in the battle of the Boyne, kept open and discharged matter.

The utility of counter-irritants seems here very equivocal, especially in young subjects. Dr. Bree says, "In very old asthmatics, issues are sometimes necessary. In younger subjects, when the disease is not yet inveterate, they may occasionally be useful, by diverting aqueous humour from the lungs, and giving a better opportunity for the operation of tonic remedies."

Diuretics have been very generally resorted to, often perhaps because in this complaint the urinary secretion is disordered; but this is generally traceable to the dyspeptic symptoms to which our attention should be principally directed. There are cases, however, in which diuretics are plainly indicated. When Dyspnoea remains after the fit, and the urine is at the same time small in quantity, and high coloured, saline diuretics should be given; and mercurials are also then usefully combined, as the case is probably complicated with visceral obstructions.

obstructions. Diaphoretics are of much use in the earlier stages of asthma; but, when the malady is of long standing, their utility is often doubtful. Whenever they are employed, gentle perspiration, not sweating, should be elicited. Stimulating sudorifics are for the most part improper. The pulv. ipecac. comp. will be found a useful diaphoretic in asthma. It is generally allowed to be a very innocent form of exhibiting opium; and the use of this article is often called for by the deranged state of the nerves, as much as the action of the skin is required to be promoted by its diaphoretic property. The inhalation of steam arising from various herbs, as hemlock, stramonium, &c. appears to be rather hurtful. Indeed from what has been before said of the cause of asthma, it is evident, that heat and moisture conveyed into the lungs is by no means likely to cure an asthma. A regular use of oxygen between the paroxysms, and when inflammatory tendency exists, will be found more useful.

2. *Asthma humidum, humoral asthma.* Under this term some physicians have comprehended the anasarca of the lungs; but we designate by it that species or variety of shortness of breath or wheezing, which is accompanied with a constant cough, and expectoration of mucus, and which is distinguished from phthisis and catarrh by being unattended with fever. It is distinguished from a dropsy of the chest, by the absence of a numbness of the arms, and (after the cessation of a temporary aggravation of the short-breathing from accidental causes) by the patient being able to bear the horizontal posture. It is the *pituitous asthma* of some writers. It generally begins under the form of the first species, or convulsive asthma; and, like it, is liable to accidental aggravations from changes of the weather, and the other exciting causes before mentioned. In regard to its therapeutical treatment, we should administer emetics and expectorants joined with æther and other antispasmodics. Blisters and issues are more serviceable here than in the convulsive asthma; but the employment of diuretics is more particularly indicated; such as squill, acetated kali, and digitalis. Ten or fifteen drops of the tincture of foxglove, or one grain or a grain and a half of the powdered leaves, joined with a fourth part of opium, should be given at a dose, and repeated twice in twelve or fourteen hours, until the shortness of the breath is relieved by a flow of urine, or until such an effect is produced on the pulse, the head, or the bowels, as shall make it necessary to suspend the use of the medicine. Decoctions of seneka or dulcamara (see Practical Synopsis of the Materia Medica, vol. i. p. 152, 233.) may be prescribed in place of the digitalis, where this last shall be found to disagree. The patient should be directed to wear flannel next his skin, and to keep his feet warm and dry.

It is worthy of remark, that asthma is often prolonged by the habitual ill-action of the respiratory muscles, their nerves, or the bronchial exhalants, when the general health is otherwise tolerably good, and the patient free from the external agents which first caused the malady. When the disease assumes this form, the paroxysm is liable to be brought on by mental emotion, or any extraordinary impulse on the nervous system. As the action of muscles in general, by frequent repetition, produces in them a great mobility, or proneness to contract, so those of the glottis and chest equally obey this law. It is to the muscles therefore that Dr. Bree referred the seat of this asthma from habit. Others deem it a want of energy in the nerves; and this seems a very probable account of it in some cases.

The complaint is to be cured by those measures likely to break the associated chain of morbid actions; as, employment of an interesting kind when the paroxysm is slightly threatened; a complete change of air and occupation, a use of stimulants of higher order than is admissible in the preceding forms of asthma, tolerably good living, and active exercise. But galvanism is a remedy

of the first importance. Dr. W. Philip having used this measure with great success, we quote his account of its administration.

"I have employed galvanism in many cases of habitual asthma, and almost uniformly with relief; and have found the affection of the breathing as readily relieved when it appeared as a primary disease, as when it succeeded to indigestion. The time, during which the galvanism was applied before the patient said that his breathing was easy, has varied from five minutes to a quarter of an hour. I speak of its application in as great a degree as the patient could bear without complaint. For this effect I latterly found from eight to sixteen four-inch plates of zinc and copper, the fluid employed being one part of muriatic acid, and a hundred and twenty of water, sufficient. Some require more than sixteen plates, and a few cannot bear so many as eight; for the sensibility of different individuals to galvanism is very different. It is curious, and not easily accounted for, that a considerable power, that perhaps of twenty-five or thirty plates, is often necessary, on first applying the galvanism, in order to excite any sensation; yet, after the sensation is once excited, the patient shall not, perhaps, particularly at first, be able to bear more than six or eight plates. The stronger the sensation excited, the more speedy in general is the relief. I have known the breathing instantly relieved by a very strong power. It has generally been made a rule to begin with a very weak one, and increase it gradually at the patient's request, by moving one of the wires from one division of the trough to another, and moving it back again when he complained of the sensation being too strong. It is convenient for this purpose to charge with the fluid about thirty plates.

"The galvanism was applied in the following manner. Two thin plates of metal, about two or three inches in diameter, dipped in water, were applied, one to the nape of the neck, the other to the lower part of the epigastric region. The wires, from the different ends of the trough, were brought into contact with these plates, and, as observed above, as great a galvanic power maintained as the patient could bear without complaint. In this way the galvanic influence was sent through the lungs, as much as possible, in the direction of their nerves. It is proper, constantly to move the wires upon the metal plates, particularly the negative wire, otherwise the cuticle is injured in the places on which they rest. The relief seemed much the same, whether the positive wire was applied to the nape of the neck, or the pit of the stomach. The negative wire generally excites the strongest sensation. Some patients thought that the relief was most speedy, when it was applied to the epigastric region. The galvanism was discontinued as soon as the patient said that his breathing was easy. In the first cases in which I used it, I sometimes prolonged its application for a quarter of an hour or twenty minutes after the patient said he was perfectly relieved, in the hope of preventing the early recurrence of the dyspnoea; but I did not find that it had this effect. It is remarkable, that, in several who had laboured under oppressed breathing for from ten to twenty years, it gave relief quite as readily as in more recent cases; which proves, that this habitual difficulty of breathing, even in the most protracted cases, is not (always) ascribable to any change having taken place in the more evident mechanism of the lungs." Philip on Indigestion, p. 372.

Genus IV. *Ephialtes*, [Gr. a leaper, because it was thought a demon "leaped" upon the breast.] Incubus, or Nightmare. Generic characters—Sighing suffocative anhelation, with intercepted utterance, and a sense of some external substance pressing heavily on the chest: transitory. This genus has two species, both of which are somewhat allied to epilepsy.

1. *Ephialtes vigilantium*: produced during wakefulness;

ness; the pressure severe, and extending over the abdomen; respiration frequent, laborious constricted; eyes fixed; sighing deep and violent; intellect undisturbed.

E. vigilantium is entered on the authority of Rhodius and Sauvages. Sauvages gives us three other species, but these are evidently symptomatic of other affections. It is a disease rarely met with, and generally arising from severe irritation of the nerves of the stomach.

2. *Ephialtes nocturnus*, (*Oneirodynia gravans*, Cullen.) Nightmare, or elf-squatting: produced during sleep, and interrupting it with violent struggle and tremor; the pressure on the chest seeming to be that of some hideous monster or phantom. This latter symptom has given rise to the various popular names, which, however different in different countries, all agree in expressing the presence of some phantom, wizard, or goblin; and which, as Dryden says,

Seeks some love-wilder'd maid with sleep oppress'd,
Alights, and grinning sits upon her breast.

Besides the delusion of supernatural spirits, the imagination at times displays the calamities of life. The patient fancies himself to be struggling with strong men, or to be in a house on fire, or in danger of being drowned; and, in attempting to run away from danger, or climb up a hill, he fancies he falls back as much after every step as he had advanced before. After he awakes, the terror excited by these frightful ideas leaves often a palpitation of the heart, with great anxiety and languor, and sometimes a tingling of the ears, and a general tremor. Many absurd explanations have been given of the phenomenon of incubus, which we shall not stop to detail. It is now generally agreed that the feat of the nightmare is principally in the stomach. It is well ascertained that some forms of epilepsy, and of hysterical fits, originate from disorder in that viscous; and so great a similarity exists between the diseases, that Galen considered the incubus as a nocturnal or slight epilepsy. People troubled with nervous and hypochondriac affections, and who have delicate or flatulent stomachs, are more peculiarly subject to this disorder; and it is observed, that a heavy or flatulent supper greatly aggravates the nightmare in those who are predisposed to it. The sympathy of the stomach with the head, heart, lungs, and diaphragm, is so remarkable, that there can be no difficulty in referring the several symptoms of the incubus to a disagreeable irritation of the nerves of the stomach.

The incubus is most apt to seize persons when lying on their back, because, in this position, on account of the stomach and other abdominal viscera pressing more upon the diaphragm, we cannot inspire with the same ease as when we sit up or lie on one side. Further, in that situation of the body the food seems to lie heavier on the stomach, and wind in it does not separate so readily by the cesophagus and pylorus as in an erect posture, when these orifices are higher than the other parts of the stomach. The nightmare occurs in the time of sleep, because the strange ideas excited in the mind, in consequence of the disordered feelings of the stomach, are not then corrected by the external senses as they are when we are awake; nor do we, by an increased respiration or other motions of the body, endeavour to shake off any beginning uneasy sensation about the stomach or breast. The incubus generally occurs in the first sleep, and seldom towards morning, because at the earlier period the stomach is more loaded with food, and that in a more crude and indigested state than in the morning. A less degree, amounting only to frightful dreams, is almost a constant concomitant of overloaded stomach in some habits; and requires the same treatment as *Dyspepsia*, which see.

Genus V. *Sternalgia*, [from *sternon*, the breast-bone, and *algos*, pain.] Violent pain about the sternum, extending towards the arms; anxiety, difficulty of breathing, and sense of suffocation, (*Angina pectoris*, *Heberden* and

Cullen.) Our nosologists have given us two species; but we are not satisfied with their reasons for the distinction. They are,

1. *Sternalgia ambulans*, (*Asthma arthriticum*, *Schmidt*. *Diaphragmatic gout*, *Butler*.) Supervening suddenly during exercise; with tendency to syncope; relieved by rest.

2. *Sternalgia chronica*. (*Orthopnea cardiaca*, *Saur*. *Syncope anginosa*, *Duncan* and *Parry*.) The paroxysms less violent, but of longer continuance; recurring frequently with great palpitation of the heart, excited by slight, and often unknown, causes; and not relieved by rest.

This dreadful disorder is found to attack men much more frequently than women, particularly those who have short necks, and are plethoric or corpulent. Although it is sometimes met with in persons under the age of twenty, it more frequently occurs in those who are between forty and fifty. In slight cases, and in the first stage of the disorder, the fit comes on by going uphill, up-stairs, or by walking at a quick pace after a hearty meal; but as the disease advances, or becomes more violent, the paroxysms are easily excited by passions of the mind; by exercise even of the moderate kind; by sneezing, coughing, or straining at stool. In some cases, the patient is attacked whilst sitting or standing, without any previous exertion or obvious cause. On a sudden, he is seized with an acute pain or tightness at the extremity of the sternum, inclining to the left side, and extending up into the arm, as far as the insertion of the deltoid muscle, accompanied by a sense of suffocation, great anxiety, and a dreadful conviction of the fatal tendency of this malady. This commonly continues for the space of an hour.

In the first stage of the disease, the uneasy sensation at the end of the sternum, with the other unpleasant symptoms, which seemed to threaten a suspension of life by a perseverance in exertion, usually go off upon the person's standing still, or turning from the wind. Dr. Parry states, that bending the body in some cases increases the pain; and therefore the patient draws himself up straight, with the head somewhat bent backwards.

In a more advanced stage, the paroxysms do not so readily recede, and are much more violent. During the fit, the pulse sinks in a greater or less degree, and becomes irregular; the face and extremities are pale, and bathed in a cold sweat; and, for a while, the patient is perhaps deprived of the powers of sense and voluntary motion. People affected with this complaint often die suddenly, but some continue subject to it for upwards of twenty years.

The cause of this distressing malady is not clearly understood; it was formerly supposed to be either a spasmodic affection, or a caries of the sternum; after this, Dr. Parry stated that it was an ossification of the coronary arteries which supply the muscular substance of the heart with blood. This change of structure must certainly render the heart unequal to the task of circulating the unusual quantity of blood thrown upon it by bodily exertions or passions of the mind; and, as the ossification increases, it must at all times impede the circulation. Dr. Parry supports this notion by dissections; but it is clear that *Angina pectoris* often occurs and amends spontaneously, or is removed by medicines; a consummation not possible if the coronary arteries were ossified.

Dr. Reeder, in his work on the Diseases of the Heart, divides the causes of *Sternalgia* into four classes. 1. An ossified, or otherwise diseased, state of the coronary arteries, whereby their calibre becomes much diminished; or an ossified condition of that portion of the aorta whereat these vessels are given off, so as to lessen the diameter of the valves of the heart, and of those placed at the origin of the aorta and pulmonary artery; also morbid contraction of the different apertures to which they are attached; and

and enlargement of the heart accompanying these morbid states. 3. Aneurism and ossification of the thoracic portion of the aorta. 4. A disordered state of the chylopoietic organs, more especially of the stomach, producing indigestion.

When Sternalgia arises from organic derangement, it admits only of palliation; and, when sympathetic only, the disease producing the sympathetic manifestation should be removed. On this account, to distinguish between the two causes is of the utmost consequence. Dr. Powell, in the Transactions of the College of Physicians, thus details the distinguishing symptoms: "When a patient complains of a slight difficulty in respiration, increased by exercise, and aggravated by a recumbent posture; if the pulse does not beat with intermissions, and the several strokes are not unequal in force, although the pulsations may be preternaturally slow, or, on the contrary, more than usually quick; I know, from actual examination after death under these different circumstances, that there sometimes is not any organic disease in the thorax. If respiration be uneasy, and the patient, at first experiencing some difficulty in lying down, shall in a little while so adjust his position as to sleep comfortably, I believe there cannot be any organic mischief in the thorax, although possibly there may be effusion. If the patient cannot sleep in a recumbent posture, or, when asleep, if, sliding down gradually into his bed, he is suddenly awaked with a sense of spasmodic stricture and strangulation, provided there hath not been previously observed an irregular and an intermittent pulse, I should suspect effusion within the chest, rather than any disease of structure. And if, in addition to the above circumstances, there should be anasarcaous swellings of the legs, and the countenance should be bloated and purple-coloured, the chest is certainly labouring under an effusion of fluid; but even then it is not absolutely clear that hydrothorax is actually produced by mal-organization in the thoracic viscera."

Dr. Hutchinson, the late editor of the London Medical Journal, has remarked the singular and characteristic symptoms of swelling of the throat, painful deglutition, and hoarseness, as attendant diseases of the heart which exhibit the form of Angina pectoris. None of the diagnostics are however infallible; and indeed the distinction between nervous and organic diseases of the thorax is one of the greatest difficulties in the whole list of human maladies.

In the treatment of Angina, we have to consider its palliation during the paroxysm, and its effectual removal. Antispasmodics are the usual agents employed for the former purpose. Dr. Reeder, in his treatise quoted before, objects to the use of internal stimuli, unless the heart appear unable, after the lapse of some time, to regain its usual action, when weak wine and water, a small quantity of æther or spirit of ammonia diluted, may be given. Some patients experience immediate relief by strong brandy and water. Should not these succeed, we should apply a blister over the cardiac region, and immerse the arm, when much affected, in hot water, and afterwards direct it to be rubbed with some stimulant and anodyne liniment. Opium may be given with advantage in a protracted paroxysm; and this medicine, or the extract of hyosciamus, often prevents nocturnal attacks, when given at bed-time. Should the syncope remain an undue length of time, it will be necessary to transmit electric or galvanic shocks through the region of the heart, and to inflate the lungs by proper bellows, so as to establish an artificial pulmonary and aortal circulation.

A few drops of hydrocyanic acid have been said to relieve the paroxysm of Sternalgia very rapidly. In the intervals between the paroxysms, much may be effected to prevent their accession, by the patient observing proper rules with respect to exercise and diet, and by avoiding exciting causes. Exercise, particularly on horseback, should not be had recourse to when the stomach is full,

Dr. R. advises his patients to drink water, and to eat sparingly; to keep the bowels open; to regulate the temperature of the body by clothing, and to avoid heated rooms and an impure atmosphere. Occasional plethora should be removed by bleeding in the recumbent position, or by cupping; and its recurrence prevented as much as possible by the almost exclusive use of farinaceous food. Issues in the thighs or arms may be used, as well as the tartrate of antimony, to excite a pustular eruption; but an occasional blister will generally answer every purpose, with much less inconvenience to the patient.

Genus VI. *Pleuralgia*, [πλευρα, the side, and αλγος, pain.] Sharp pain, or stitch, in the side; difficulty of breathing, without fever or inflammation; and thus distinguished from Pleuritis, or pleurisy.

A stitch or pain in the side often occurs, independently of any acute inflammation of the lungs, pleura, or contiguous organs, and it is generally increased by the action of breathing. It has been often denominated a false or spurious pleurisy. The pain, however, is seldom seated in the membrane called the pleura, but often in the muscles of the chest, sometimes in the other membranous parts; and it may arise from rheumatism affecting those parts, from spasm or cramp, from a plethoric condition, or from a nervous and hysterical state, in which the circulation is languid and irregular: it may also be connected with a gouty, siphilitic, or scorbutic, habit. Sauvages has distributed the Pleurodine (his name for this genus) into eighteen species, according to its origin from one or other of these causes. But Dr. Good gives us only two species.

1. *Pleuralgia acuta*: sudden and temporary; super-vening on muscular exercise; relieved by pressure.

2. *Chronica*: permanent; augmented by pressure; inability of lying on the side affected.

The first species found also frequently as a symptom in flatulence, hysteria, and hypochondriasis. The second in plethora, worms, siphilis, phthisis, rickets, catarrh, and rheumatism. See *Pleuritis*.

CLASS III. HÆMATICA, [from the Gr. αιμα, blood.]

DISEASES OF THE SANGUINEOUS FUNCTION.

The chief modes in which the sanguineous system is influenced in disease is in regard to the state of the contained fluid on the one hand, or the state of the containing vessels on the other. The consideration of the first occupied, as is well known, for a long time, the medical world; and the most famous hypotheses of the seventeenth and early part of the eighteenth centuries were founded on supposed chemical changes in the blood during diseased states. (See the historical section of this article, p. 13—16.) At present, though it is acknowledged that the contained fluids vary much as to their nature in different persons and diseases, and that the introduction of foreign bodies in an *unassimilated* state is followed by violent symptoms, yet we have also ascertained that the constitution accommodates itself in a great degree to those insensible changes which unusual food or indigestion produces, and that the blood exhibits a variety in the proportion of its constituent parts even in healthy individuals. There can be no doubt that a general bad state of the fluid of the body exists in some diseases; and these are necessarily accompanied with alteration in the contractile power of the blood-vessels. Of the nature, however, of this morbid alteration of the blood, we know scarcely any thing. We shall mention the scanty stock of facts we are furnished with on this subject when treating of the last order of this class, *Dyspeptica*, or *Cachexies*.

The quantity of the blood in the animal frame varies in most diseases, and often without our being able to trace any very manifest causes of this variation. Some distinguished

distinguished authors have adduced the fact of general inordinate habits of eating as an explanation of the frequency of plethora; but as, from the facts we have noticed under *Dyspepsia*, it is clear that gluttony must lead for the most part to indigestion, and that to deficient nutrition we should be tempted to look for the cause of this state. In the general diminution of secretion, and in fact in fevers where this diminution is very apparent, a full state of the blood-vessels is the most formidable symptom, and one which the most copious abstraction of blood in many cases scarcely abates.

The plethoric state may (though it rarely does) exist in the same degree in the sanguineous system generally; or it may be excessive in all parts, but much more so in one or more peculiar structures; or, which is more common, it may be excessive in one part, and deficient in the rest. Under each of these circumstances, the blood-vessels are disturbed in their functions; which brings us to the consideration of these latter parts.

At page 28, we have detailed briefly the agents of the circulation, and have not hesitated to mention the contractility of arteries as one of them. In doing this, however, we were perfectly aware, that we were opposed by the opinions and experiments of some of our best pathologists; yet, on the other hand, men of equal talent, and the authors of experiments apparently conducted with equal precision, strongly corroborate our view of the question. For our own parts, we pay little deference to these experiments which, from their very nature, can never be conclusive. Whoever will take the trouble to read over with attention the numerous histories of experiments detailed by Dr. Hastings, the last author who has performed experiments on this subject, will concur with us in this opinion. They will find, that in some experiments the dilatation and contraction was not manifest at all; in others, not for some time; and in others immediately and unequivocally. Indeed we should naturally expect that these circumstances would occur to parts stimulated by unnatural means; and deprived no doubt of much of the fluid of the *vasa vacuola* by the dissection necessary for their exposure.

We think, however, that this matter may be more satisfactorily settled by analogical reasoning than by the evidence of the senses, when that evidence produces such various appearances. By those who suppose that arteries aid the motion of the blood, it has been asserted, that the heart cannot propel that fluid through the round of the circulation; but this assertion has neither been proved nor disproved. One party says that the heart has this power, for this reason; it is not required to drive the blood through the whole of the arterial and venous systems, since an impression on the aorta by means of the left ventricle (the column of blood being continuous) must immediately, and without the hindrance of friction, be transmitted to that portion which the venous system is pouring into the opposite side of the heart. But it is certain that this continuous column is liable to much variation; and hence it would seem more probable that the arteries lent some assistance to the heart. That the arteries have this power in some animals is demonstrated, because they have no heart; and, though Dr. Parry may say, that "if the circulation is carried on by any central force of whatever description, the apparatus in which that force resides is to all intents and purposes a heart;" he must in this case show how the structure in question differs from arteries in common; and that it does differ, the researches of the accurate Sir Everard Home seem to deny. It might appear, that the dependence some arteries have on the nervous system, and that exclusively of the heart, was a strong argument in favour of the contractility of these vessels; but those who discredit the existence of this property assert, that this independent action of the artery arises from the debility of its parietes, which gives way to the impulse of the heart, and admits a greater flow of blood; this debility expressing,

according to them, a loss of *tonicity*, or that degree of contraction which an artery is at all times exerting on its contents.

We cannot help thinking that the truth of this refo-
lutely-contested point lies between. For, upon examining the probable action of *tonicity*, little difference will be seen between it and the phenomena of contractility. We must remark, that *tonicity* is used by one party to denominate a perpetual tendency to diminish the calibre of the artery: *contractility* is used by the other to designate alternate contractions followed by active dilatation. Active dilatation is by no means probable, since it is unlike the phenomena we observe in other contractile structures of the body; so that this must be considered the result of the heart's action. But, with regard to the *tonicity* which Parry and others allow to arteries, they say, that this is not the "*contractilité par défaut d'extension*" of Bichat, but a vital power. If so, is it too much to assert that a vital contractile structure, which is expanded, will recover a smaller calibre than it had originally? To exemplify this, we suppose the size of an artery equal to 3, and that the impulse of blood injected into it stretches it to 4. It may be inferred from the known power of contracting fibres in other parts of the body, that, the pressure being removed, it will reduce its circumference to (say) $2\frac{1}{2}$: and this overcomes another objection that has been made to supposing the contraction and dilatation of arteries; viz. that this dilatation might impede as much as accelerate the progress of the blood, since it might exist over the whole arterial system just at the time the left ventricle contracted. But, if the contraction be brought about in the manner we have stated, it must of course observe the same time in its contraction as the heart itself, and consequently may materially assist the circulation.

We shall assume, therefore, in our speculations on the *Hæmatica*, the contractility of arteries, using this term with the restriction before stated. We have before said, that at the extreme branches of the arteries a motion is derived from a capillary attraction existing between these vessels and the blood. This of course is no explanation, because we do not know any thing about capillary attraction. It may be used, however, to denote that the same law governs the motions of the blood in these living tubes (to a degree) as in inanimate vessels. A motive power is again to be found in the secretory system: and here the data of reasoning become fewer than those on which it is founded, even with regard to the capillary arteries; and we can only conjecture, plausibly, that an attraction exists between certain parts only of the blood and the sides of the vessels; and that the addition of a something from the nerves is necessary to change these parts of elements to the form they exhibit on secreting surfaces, or outlets. The passage of fluids in the larger absorbents, and in veins, we have before noticed. It was necessary to recapitulate these circumstances, that the whole of them might be borne in mind while treating of the diseases of this system.

With regard to diseases from *quantity* of blood, it is to be noticed, that an increase in the mass of blood seldom exists unaccompanied by an increase of the action of the heart; when this does occur, the blood, although its quantity is increased, will have its rate of motion diminished. In such a case, the smaller arteries, in which, as before stated, the contractility is greater, in proportion to the size of the vessel, than it is in the larger arteries, will, from the want of dilatation by means of the heart's contraction, lessen their sphere of contraction, so that an increased proportion of the general mass of blood will be contained in the larger arterial trunks, in the veins, and in the cavities of the heart. The whole round of the circulation will be obstructed. The action of the heart will consist of flow feeble contractions, or of ineffectual flutterings. The pulmonic process will be imperfectly performed: hence respiration will be laborious and hurried,

Richoll

The antivasular Physiologists say - that the fibre
found in an artery is not muscular because
they don't contract when stimulated in experiments.
The opponents reply no because in your experi-
ments you put them in an unnatural state
and destroy their properties. - Hastings though
he did see contraction & dilatation always saw
irregularity. - The ant. Phil. say if the motion
^{of the heart} is
deranged in the gth arteries there would be
continued stoppage in the heart. The vase. say
but the heart has been found quite ossified
or of a tumor growing to its surface. ++ They
deny contumacious & ununiformity in
the arterial beats.

The way the blood gets out of the capillary tubes
is puzzling.

By Perilene of the lungs.

- I don't know why. ++ The first ~~one~~ of these seems
very conclusive. But the heart might in one though
even though enveloped by a tumor.

Arteries of the larger size are found empty after death. It is not the resilience of the lungs ^{but} drawing the blood into the ~~arteries~~ ^{veins} produced ~~by this~~ effect or that. ~~an alteration in the nervous influence~~ ^{hindrance} of the capillaries continuing lower than that of the heart. and thus sucking the blood from the arteries into the veins. —

^{Wren 1844}
"The blood in some kinds of Asphyxia" (not kind)
is retained & fixed in the arteries. ~~hence~~ ^{what is the cause.}

hurried, the colour of the blood will be changed, and temperature diminished.

From the circulation of this blood of unnatural quality, disorder of the whole of the nervous system, and hence of every function in the body, may ensue. If the mass of blood be increased, and if the action of the heart be also increased, so as to propel the greater mass with freedom; in such a case, the contractility of the smaller arteries being more powerfully opposed, these vessels will yield more readily to the current of the blood; they will therefore receive a greater quantity of that fluid, and consequently an increased quantity must pass by their termination. The quantity of secreted and of exhaled fluids will be increased; the blood will flow with greater force, and in greater quantity, throughout the whole round of the circulation. As an increased quantity of blood will pass, in a given time, through the pulmonic circuit, respiration must be more quickly performed, otherwise that fluid will not duly undergo the pulmonic process. The sensibility of the nervous system may be increased, and the functions of that system may be more freely performed. Hence all the functions dependent on nervous influence will be exalted.

The diminution of quantity in the blood generally manifests itself by the want of action in the nervous system, and hence of all the secretions. But this state is not likely to last long; and indeed generally remedies itself, except when the assimilating organs of the body are diseased.

Passing over these plethoric states, we come to the consideration of an alteration in the contractility of the blood-vessels, or of the common malady called INFLAMMATION.

When a violent blow is given to an external part of the body, the four following circumstances are after a time observable; viz. redness, tumefaction, pain, and heat. Presently a throbbing is felt in the arteries going to the part, and a disturbance takes place in the vascular and nervous system, concisely called *fever*, and a change in the quality of the blood. To account for these simple appearances has puzzled the medical philosophers of every age, and it puzzles them still. In our Introduction we have noticed the wild speculations of the earlier physicians. Passing over Boerhaave's notion, that viscidness of blood was the cause of inflammation, and that of Cullen, which, like this theory of fever, rests on the assumption of a spasm of the extreme arteries, we proceed to notice the celebrated opinions of Mr. John Hunter. According to him, *inflammation* is to be considered only as a disturbed state of parts, which requires a new but salutary mode of action to restore them to that state wherein a natural mode of action alone is necessary. From such a view of the subject, therefore, inflammation in itself is not to be considered as a disease, but as a salutary operation, consequent either to some violence or to some disease. Elsewhere the author remarks, the act of inflammation is to be considered as an increased action of the vessels, which, at first, consists simply in an increase or distention beyond their natural size. This increase seems to depend upon a diminution of the muscular power of the vessels, at the same time that the elastic power of the artery must be dilated in the same proportion. Owing to this dilatation, there is a greater quantity of blood circulating in the part, which is according to the common rules of the animal economy: for, whenever a part has more to do than simply to support itself, the blood is there collected in larger quantity. The *swelling* is produced by an extravasation of coagulable lymph, with some serum; but this lymph differs from the common lymph, in consequence of passing through inflamed vessels; it is this lymph which becomes the uniting medium of inflamed parts; vessels shoot into it, and it has even the power of becoming vascular itself. The *pain* proceeds from spasm. The *redness* is produced either by the arteries being more dilated than the veins, or because the blood is not

changed in the veins. When, after an injury, a part cannot be restored to health by inflammation alone, or by adhesion, then suppuration, as a preparatory step to the formation of granulations, and the consequent restoration of the part, takes place. The vessels are nearly in the same state as in inflammation; but they are more quiescent, and have acquired a new mode of action. See Hunter on the Blood, Inflammation, &c.

That the capillaries are distended in inflammation is pretty generally agreed; and, this allowed, we clearly explain the increased size of the part, without admitting that lymph is extravasated, a fact of which we have no proof.

We have not space to enter at full into the proofs of the distended state of the capillaries. There is less discussion required about this distention, however, than it has been the fashion to enter into; for it is visible to the naked eye, and is still more clearly shown by the microscope. The independence of this distention on the heart is also pretty clearly established; for we observe blushing from shame or ire, and a redness in various parts of the body, without general accelerated pulse. But, though the distention of the capillaries in inflammation is pretty generally allowed, pathologists are by no means agreed as to the rate of motion which the blood undergoes in them; some, as Wilson, asserting that the velocity of the blood through an inflamed part is diminished; others stating that it is increased. Dr. Parry shows very clearly, that this is of little consequence to our speculations on this subject; but properly remarks, that, if the *velocity* be diminished, yet, the *quantity* being increased, the momentum must still be greater than ordinary. Again; a question arises, whether the arteries retain during inflammation the alternately-contracting force which we have assigned to them in health, or whether this power is lost. The proofs of the first alternative rest on what is observed by means of the microscope on the transparent parts of cold-blooded animals; as, for instance, on the web of a frog's foot. It is there seen, that, on the application of stimuli to a certain degree of force and for a certain time, a permanent or unvarying dilatation of the capillaries supervenes, and the blood seems to move slowly. This observation is not worth much, however, because even the alternate contractions of the capillaries are not visible in the situation above mentioned, on account of the small size of the vessel. We may adduce a pathological observation more strongly corroborative of the inert dilatation of the capillaries in inflammation; which is, that, whereas the exhaustion of the contents of arteries (not having been thus affected) is met with almost invariably, inflamed arteries are not exhausted of their blood.

The *pain* in inflammation is not easily accounted for. That the sensibility of the nerves is much increased is evident from the extreme uneasiness which ordinary impressions produce on them when in a state of inflammation; but we are ignorant by what means this pain is produced. It has been attributed to the pressure of the distended capillaries; and this appears plausible at first view; but the idea is opposed by the facts, that many parts suffer distention of their capillary vessels without pain occurring; and that the pain is often most severe before this distention begins; as for instance, after a blow, or in the case of gout, in which disease, as is well known, the coming-on of redness and swelling often relieves the excruciating pain of the first attack; so that we are compelled to state increased sensibility as one of the essential circumstances of inflammation, but we cannot trace the cause of its production. The increased warmth of the part has been supposed to depend upon the presence of an increased quantity of blood. But, as the extrication of heat is a process which is dependent upon the nervous system, and consequently influenced by altered conditions of that system, the increased warmth, and the increased evolution of heat, which accompany inflammation,

tion, may be chiefly attributed to the irritated state of the nerves. And accordingly we find, as Mr. Hunter's well-known experiments testify, that the heat of internal parts (to which the office of extricating heat does not belong) have not their temperature increased during inflammation. It is worthy of remark, that the real increase of heat in the inflamed part is not so great as the feelings of the sufferer might lead us to suppose, the thermometer seldom indicating very remarkable changes in this respect. To the irritated state of the nerves we must therefore look for this sensation of exalted temperature.

Mr. Hunter's account of the *redness* of the part seems very probable, especially if we add to what he has said on the subject, that the total want of secretion must prevent the chemical change on which the darkened colour depends. It appears then, that the two states of exalted sensibility of nerves on the one hand; and plethora of the capillary vessels on the other, account for the four first phenomena of inflammation; and it would perhaps preserve us from much obscurity in our speculations, if we assumed the existence of these states without endeavouring to penetrate into the mode of their production.

The two states of altered nervous sensibility and altered muscular or vascular contractility, are capable of separate existence. Plethora is well known to produce sometimes no pain; and the most excruciating pain, as for instance in *tic douloureux*, is often unaccompanied by inflammation. In the majority of cases, however, these states seem to follow each other. The obstruction of the circulation in a limb causes pain and inflammation; and impressions which can only act through the medium of the nerves cause the same action.

The primary impressions which disorder the properties of an artery, must occur through the medium of the nerves, or of the contained blood. From what we observe of the effects of an undue degree of nervous influence, being transmitted to one part, as in cases of fatigue, &c. we are led to infer, that the excessive transmission of nervous power brings on two kinds of alteration in the contractility of an artery. It may produce increased contraction; and this will surely be followed by such a diminution of that force as accords with this remarkable and well-known law observed in contractile fibres over the whole body; that they, having exerted their function beyond a certain point, lose their contractility for a given time. Again; the nature of the nervous impression may be such as to weaken or directly impair the contractility of the vessel, and thus distention of the arteries may occur without any previous contraction.

The alterations induced by the bad *quality* of the blood will be of the same two kinds; a direct diminution or direct increase of the contractility of the vessel; the former being less uniformly followed by the latter state than when it arises from nervous influence. These facts form the basis of our theory.

It must not be forgotten, that this reasoning with regard to the state of vessels in inflammation has been thought to be overthrown by some, because it is inadequate to explain the various appearances and products; as of inflammation, the different cutaneous phlogoses, erysipelas, terminations in gangrene, ulceration, &c. And these authors have talked of various kinds of inflammation; as that arising from different morbid poisons, &c. To this we reply, that we do not take inflammation in this wide sense: all we know of the function of the vascular system of red blood demonstrates that this system is capable only of a change of the contractility of its vessels; and no diminution or increase (and diminution or increase are the only changes in contractility of which we can form any clear notion) will account for a variety in the appearance of inflammation. We must therefore look to the secretory system for the various forms of inflammation; and, though the little we know

of these vessels keeps us still much in the dark on the subject, yet the phenomena in question admit of our forming plausible and general deductions from the inferred properties of the white vessels. Indeed the effects of inflammation depend much upon the nature of the secretion carried on in particular parts. Thus, when inflammation is seated in a mucous surface, (i. e. on a surface possessing vessels which secrete and pour out mucus,) an increased quantity of mucous fluid will be poured out. When a surface upon which exhalants open (or, in other words, a serous surface) is the seat of inflammation, that state is, in many instances, followed by increased flow from those vessels. The irritated state of the nerves alone would dispose the exhalants to give passage to an increased quantity of fluid; and the same effect might result from simple plethora. There are other fluids which are the products of such vessels as are situated in an inflamed part. As the blood furnishes the materials for all such fluids, so will the plethoric state of the blood-vessels, during inflammation, furnish an increased quantity of those materials, while the separation of them from the blood is influenced, or produced, by the state of the nerves. In each of these cases, we have strong evidence that the secretants are the parts peculiarly affected, while the state of the capillaries is the same; so that we may conclude, that inflammation is in all parts and structures the same; i. e. a dilatation of the capillaries, while its various appearances arise from the changes which the secretants undergo, whether that change be in the pouring-forth of unnatural products, or assimilating and retaining those products in their cavities. In other words, that variety of secretions is the concomitant, not the essential, circumstance of inflammation. The same notion may be extended to surfaces in which secretions are not poured out, but deposited in the cellular substance; as erysipelas, and various unbroken cutaneous dissections.

We have said, that distended capillaries and the extreme sensibility of nerves account for the four local phenomena of inflammation—heat, redness, swelling, and pain. We must not forget to mention, that the distention of the capillaries is, as Dr. Hastings has shown, generally preceded by increased action or excitement, in which the vessels are smaller, and contract probably with greater frequency. This is so clearly proved by Dr. H. that we shall not relate his experiments or repeat his observations, but refer the reader to the series of experiments which he has published (on bronchitis); the fact is of importance, since it shows that excitement, which we have been wont to consider a minor species of inflammation, is really an opposite process.

The discussion of the general phenomena of inflammation, fever, and the buffy appearance of the blood, requires us to show in what the state denominated *fever* consists, how it is connected with local inflammation, and how a general change in the quality of the circulating fluids arises, from the local inflammation or from the general disturbance.

With regard to the altered quality of the blood, this fluid, taken from a patient labouring under inflammation, exhibits peculiar appearances. The blood, when it has escaped out of the living vessels, spontaneously separates into two distinct parts, the serum and the crassamentum. The last is a compound substance, consisting chiefly of coagulating lymph and red globules, the most heavy ingredients in the blood. Now it is to be observed, that blood taken away from persons affected with inflammation, is longer in coagulating, and coagulates more firmly, than when drawn from people in other circumstances: hence the red globules, which are very heavy, not being so soon entangled in the lymph, descend by their gravity more deeply from its surface, which, being in this manner more or less divested of the red colouring matter, is, from its appearance, termed the *buffy coat*, or *inflammatory crust*. The firmer and more compact coagulation of the lymph

lymph compresses out an unusual quantity of serum from it, and the surface of the *fazy* blood, as it is frequently called, is often formed into a hollow, the edges being drawn inwards. These changes in the blood are, in some cases, a more infallible proof of the existence of inflammation than the pulse itself. In peritoneal inflammation, the patient sometimes seems to be in the most feeble state, and the pulse, abstractedly considered, would rather induce the practitioner to employ tonics and stimulants than evacuations; but, should the continuance or exasperation of the disorder, or any other reason, lead the surgeon to use the lancet, then the *buffy coat*, the *concave surface* of the blood, and the *large quantity of serum*, clear away all doubt concerning the existence of inflammation. It is important, therefore, always to inspect the blood after it is cooled, with a view to the detection of this unnatural state. But every practitioner ought to bear in mind, that, in pregnant women, and in a few anomalous constitutions, the blood, taken away by the lancet, always exhibits the foregoing peculiarities, though inflammation may not prevail.

The above alteration in the quality of the blood has never been accounted for. As it is only observable in constitutions where some source of nervous irritation is present, we should be inclined to refer its appearance to that irritation. We shall hereafter have occasion to show how important a part nervous excitement plays in developing the phenomena of fever; and it is to be remarked, that, while inflammation is merely local, no change takes place in the state of blood in general; but no sooner has fever become established, than the blood exhibits the buffy coat. Now, in the instance of pregnancy, it will be allowed on all hands, that the gravid uterus is a perpetual source of nervous irritation to most females; and it has been remarked, that those anomalous constitutions in whom this appearance has been always met with have been persons who exhibited excessive sensibility in the nervous system, or were, in other words, of the nervous temperament.

The action of the nervous system may produce this change in the blood by the disproportionate evacuation of the elements of the blood, as in excessive secretion, or by the undue retention of some of these parts; both of these disturbances being of course effected by the action of the nerves on the secreting vessels. The present state of our knowledge does not permit us, however, to show in what structures this conjectured deprivation or retention is effected.

In considering the next general symptom of inflammation, *fever*, we shall enter into a full account of the febrile state, both idiopathic and arising from this action, or, as it is termed by surgeons, symptomatic fever. We have gone so far into the subject of inflammation, because it was necessary to the right understanding of the febrile phenomena we have next to explain. These general views having been taken, we shall trace the various forms inflammation exhibits in the different structures, and the different changes in secretion which accompany it, when speaking of Phlogotica, the second order of this class.

It is generally allowed that no general definition of fever, capable of embracing all its varieties, has been given. A general alteration is found in the organic, oftentimes in the animal, functions, the former suffering the first changes. The sanguineous and muscular systems are also altered; and, when the disease is established, all the functions seem impeded together. This statement, that fever consists in an alteration solely of almost all the functions of the body, is, it must be confessed, extremely vague; yet it is the only one which will embrace all the varieties of fever; for cases are recorded where the heat was not exalted without the pulse being sensibly augmented, and vice-versa; and so on of every other function.

Order I. PYREXICA, [*πυρετός*, Gr. from *πυρ*, fire.] Fevers.

Here we have the heat and number of the pulse preternaturally augmented; usually preceded by rigor, and followed by perspiration; pains fixed and wandering; lassitude, debility of mind and of the voluntary muscles.

In our introduction we have mentioned some of the most remarkable opinions as to the essential nature of fever. The speculations of Brown and Darwin were noticed; and many have arisen since; but there are few which we now deem worth detailing. The first which, from the strong facts by which it is supported, is deserving of notice, is the theory of Dr. Clutterbuck. We shall copy from the article FEVER of Dr. Rees's Cyclopædia, Dr. Bateman's (this gentleman being understood to be the writer of that article) exposition of Dr. Clutterbuck's theory, and his luminous objections; reserving our own remarks for the end of it.

Dr. Clutterbuck's Theory.—Fever has usually been called a general disease, affecting all the functions, in contradistinction from local diseases, in which some particular organ is the primary seat of the disorder, and the affections of the other functions are secondary or symptomatic. But Dr. Clutterbuck denies the existence of general disease, and maintains that all general or extensive derangement of the animal system is referrible to local derangement in some one organ. The organ universally affected in all the varieties of idiopathic fever, which differ but in degree, as well as in those which arise from specific contagion, as malignant fore throat, scarlet fever, small pox, &c. is, in the author's opinion, the *brain*. This is manifest, he contends, from the symptoms, as the head-ache, the depression of strength, and other derangement of the animal functions, the delirium, the tremors, failure of vision, &c. It is manifest from the nature of the remote causes which act chiefly on the brain and nervous system, as intoxication, fear, grief, and other passions, external irritation, not to mention miasmata and contagion, of the operation of which we are ignorant; as well as from the predisposing causes, which probably consist in a deficiency of sensibility, as in idiots, negroes, old people, and *infants*: but it is more particularly manifest from the consequences of fever, whether after recovery, or after death, ascertained in the latter case by dissection. Among the consequences of fever, which are not uncommon after recovery, are an impaired condition of the senses; such as deafness, imperfect vision, depraved taste; paralytic affections, or convulsive complaints, as epilepsy and chorea; derangement or loss of the mental powers, such as melancholy, great irritability of mind, loss of memory, or even complete fatuity. The consequences observed on dissection, after death occasioned by fever, are frequently visible disease of the brain, of which several examples are quoted by the author. He then proceeds to show, that the local affection of the brain, thus manifest, is in fact *inflammation* of that organ; or that fever, therefore, "is nothing less than a species of *phrenitis*, or topical inflammation of the brain," and should be arranged in the order of *Phlegmasia*, with pleurisy, enteritis, and other symptomatic fevers: but, as *Phrenitis* has been generally applied to a particular form of inflammation of the brain, and implies delirium, which does not always occur in fever, although it is a frequent symptom, Dr. Clutterbuck proposes the term *Encephalitis* as the denomination for fever. The arguments adduced in proof of the notion that the topical affection of the brain, in fever, is inflammation, are, 1. The analogy between the symptoms of fever and those of inflammation, viz. pain, heat, throbbing, acute sensibility, &c. being common to both. 2. The occasional buff of the blood in both. 3. The similarity of several of the exciting causes of both. 4. The occasional alternation of fever with inflammation. 5. The analogy in regard to the cure of the two diseases generally, as by means of blood-letting, vomiting, sweating, purging, blistering, and the application of cold. 6. The symptoms

of fever not being distinguishable, on the whole, from those which belong to phrenitis, as described by authors. 7. That the morbid condition of the brain, discovered by dissection, is such as implied previous inflammation.

"In the first place," says Dr. Bateman, "Dr. Clutterbuck, like other theorists enamoured of a favourite doctrine, appears to have laid too great stress upon those phenomena which support that doctrine, and to have conceded less to opposing facts than they are entitled to claim. Hence, in retracing the delineations of fever, in the words of the most creditable writers, he has distinguished by italics all those signs which indicate derangement of the encephalon, by which they are made to stand the most prominent features in the picture. Hence, also, he has assumed the position, that the derangements of the natural and vital functions, which are nearly, if not altogether, as universal concomitants of fever as the disorders of the animal functions; are nevertheless, in all cases, secondary symptoms, originating from the primary affection of the brain." Thus the nausea, the vomiting, the total loss of appetite and of the digestive power, are believed to be always sympathetic of the affection of that organ; so likewise is the quickened action of the heart and arteries, and of the respiration. That this, however, is a gratuitous assumption, may be shown, 1. By attending to the very histories which Dr. Clutterbuck has quoted, in which the occurrence of the deranged condition of the stomach is as constantly mentioned as that of the disorder of the encephalon. 2. By observing, that the sympathy between the brain and the stomach is perfectly reciprocal; so that the brain suffers in sympathy with the stomach, not less manifestly than the stomach with the brain. 3. By remarking, that the symptoms of disordered stomach are capable of being relieved or removed, while the supposed cause (affection of the brain) remains; the thirst being allayed, and the sickness removed, by changing the state of the skin only, the former by moistening it with water, the latter by exciting sweat, as observed by Sydenham. Whence Drs. Cullen and Darwin seem to be rather justified in attributing the derangement of the stomach, when it is affected secondarily, more frequently to its sympathy with the state of the skin than of the brain.

"Farther, the connexion of many of the leading symptoms with some disorder of the brain, or common sensorium, is admitted by all, and equally favours the hypothesis of the other authors, as well as that of Dr. Clutterbuck; since, whether the brain is primarily or secondarily affected, certain phenomena in the nervous system must necessarily ensue. We have just stated some reasons for believing that it is often thus secondarily affected; and it now remains to offer our reasons for supposing that inflammation of the brain, when it does occur in fever, (to which we cannot consider it as essential,) is commonly secondary likewise.

"The first symptoms of the affection of the brain are by no means those which indicate inflammation or unusual excitement of the sensorium; on the contrary, they are such as indicate an opposite state, which Dr. Cullen has termed *atony* and *collapse*, and Dr. Darwin *torpor*; the head-ache itself, according to the observation of Dr. Fordyce, is altogether distinct from the head-ache of inflammatory excitement, or of the hot stage. Any symptoms that can be interpreted as indications of local inflammations, such as redness of the eyes, protrusion of the features, flushed countenance, throbbing of the arteries, and even delirium, are the appearances belonging to a subsequent period of the fever. But at this subsequent period, inflammatory congestions are liable to occur in the other viscera, if not so frequently, at least not unfrequently; as in the stomach, for example, the intestines, the lungs, and other organs. This fact has been noticed by many physicians of accurate observation. Riverius long ago remarked, that acute and malignant fevers scarcely ever occur unaccompanied by inflammation in

some one of the viscera; and he has stated in another place in most distinct terms, that we ought assiduously to recollect, that all those fevers, with which local inflammation is conjoined, are not symptomatic, but often idiopathic, and that the inflammation supervenes, not being the cause but the consequence of the fever; *quæ febrem inflam non efficit, sed illi potius succedanea est.* Thus, he adds, 'We frequently observe in practice, that patients labour under continued fever for a day or two before pain of the side and other symptoms of pleurisy appear; thus also many persons on the third or fourth day of fever fall into inflammation of the brain, &c. Sic nobis frequenter in usu practico videre licet aegrotantes, ab initio febre continua laborantes per unam aut alteram diem antequam dolor lateris et alia pleuritidis signa appareant: sic multi tertia vel quarta febris die in phrenitidem incidunt, &c.' (River. Prax. Med. lib. xvii. cap. i.) Dr. Donald Monro, whose testimony on subjects of morbid anatomy is of considerable weight with Dr. Clutterbuck, remarks, when speaking of malignant fever, that 'this fever occasions in general more or less redness (I do not know that we can properly call it true acute inflammation) of the membranes; and the febrile matter is apt to fall on particular parts, and there to create abscesses, particularly in the brain, the lungs, and the glandular organs.' (Treatise on Military Hosp. vol. i. p. 237. and Dr. Clutterbuck's Treatise, p. 172.) Observations to this effect might be easily multiplied, and we have already enumerated several in a former part of this article. It is somewhat singular, that Dr. Clutterbuck, who quotes the remark of Dr. Monro, should deem it favourable to his hypothesis of exclusive inflammation of the brain; since it obviously proves an equal liability to inflammation in other organs, if it proves any thing. Now, it must be admitted, that, if fever depends upon inflammation of the brain, and is merely symptomatic of such a state, this state must be always present, when the symptoms of fever occur; one clear negative example is surely fatal to the theory. Dr. Beddoes collected a considerable quantity of evidence from the histories of dissections, made during the prevalence of several epidemic fevers on the continent; from which it is proved, indeed, that congestion, or some other morbid appearance, was frequently observed in the brain or its membranes; but it is also showing, that abscesses, gangrene, or other marks of inflammation, were not less frequently found in the viscera of the thorax and of the abdomen, especially in the stomach and liver. These facts we have detailed, when speaking of the consequences of fatal fevers, as discovered by dissection; and it is unnecessary to repeat them here. Dr. Beddoes is fairly led (supposing the facts accurately represented) to this inference, that, in idiopathic fever, the stomach and contiguous parts have been found more constantly and more deeply affected with inflammation, than the brain and its membranes. (Researches, Anatomical and Practical, concerning Fever, &c. by T. Beddoes, M.D. published in 1807.) But, lest the testimony of authors of little note may be questioned, we shall quote that of one of the most able and experienced of our hospital-physicians, Dr. Lind of Helsing. Speaking of a destructive contagious typhus, which prevailed in the French fleet in 1757, he says, 'the symptoms of the fever were the same as we have already given in the description of the gaol-distemper. On dissection, the brain of those who died was found perfectly sound, though during their sickness the head had always seemed greatly affected: in two cases only, out of twenty which were inspected, the blood-vessels of it appeared a little enlarged. The lungs were generally found gorged with blood, and seemed to have a gangrenous disposition. The abdomen more immediately suffered by the disease, particularly the liver, stomach, and intestines; in the intestines there was often found a green offensive liquor, sometimes worms.' (See Lind on Fevers and Infections, chap. ix. sect. 3.)"

For these reasons Dr. B. concludes, "that inflammation occurs only occasionally in the brain; that this organ is liable to inflammation only in common with the other viscera; and that inflammation is in all the organs a secondary result of fever, and not its essential cause. In this view of the subject, all the arguments from analogy between fever and inflammation, which Dr. Clutterbuck has brought forward, may be (and indeed must be) admitted; while, at the same time, they add no weight to his theory: for the analogy is equally favourable to the notion of a secondary as of a primary occurrence of inflammation. And we cannot but observe, before we take leave of these doctrines, that the analogies which Dr. Clutterbuck has pointed out, as well as the various facts which we have quoted from Riverius, Monro, Beddoes, and Lind, tend to confirm the hypothesis of Darwin, under which these facts, contradictory as they are, to the opinions of Dr. Clutterbuck, are reduced to a perfect consistency." It may be added, that a doctrine, according most accurately with that of Dr. Cl. is taught by Dr. Ploucquet, in the university of Tubingen.

Now, speculating upon this contention between the two most eminent writers on the fever of this country, it will appear, that Dr. Clutterbuck's hypothesis is neither proved by himself nor refuted by his antagonist. For, such is the sympathy between all parts of the body, that, if inflammation of the brain be produced, a general increased action of the heart and arteries occurs, and those parts predisposed to inflammation will take on that action, or inflammation arising on other parts will as surely disturb the cerebral. The succession of symptoms does not overthrow this theory, because, though the first symptoms denote diminished energy of the brain, such a state is, according to a law before laid down, most likely to be followed by the opposite state.

To the testimony of Lind and others, Dr. Clutterbuck objects, that we are not acquainted with the appearance of a brain perfectly sound; and the changes in that delicate structure must often be inscrutable; and he thinks that few persons die without some morbidity of the brain. We are not, however, disposed to advocate the opinion of Dr. Clutterbuck (principally for the last objection, which his answer does not overthrow), but to show that it is not much affected by the arguments in question; and we have no hesitation in saying, that, whether as a cause or a consequence, inflammation of the brain is more generally found in the fevers of this country than any other kind of lesion, as indeed we should naturally expect to find in civilized society, where the brains of the inhabitants are for the most part in a state of unnatural excitation. We should therefore pay the greatest attention (at least in fevers of this country) to the occurrence of inflammation of the brain.

With respect to the *gastric* origin of fever, hinted at by Dr. Bateman in the preceding extract, and which when first promulgated obtained few supporters; it is remarkable, that it is now believed in (with some modification) by many of the most eminent continental pathologists, among the first of whom is Broussais. This author conceives that the plague, and all varieties of fever, whether adynamic, ataxic, typhous, or yellow, are nothing else than various species of inflammation of the mucous membranes of the stomach and small intestines, differing in their degrees of violence, as well from the peculiar constitution of the patient, as the causes which may have produced them. M. Broussais terms these maladies *gastro-enterites*, not because he believes that, in all cases, the stomach and intestines are irritated in the same degree, but because the affection which commences almost constantly in the first of these organs is quickly propagated to the second; and from the curative indications being the same, whatever may be the part most violently affected. He endeavours to point out, from the symptoms, the principal seat of irritation in the different stages of the disease.

When it is violent, and has continued for a certain length of time, he has constantly observed that it has been communicated throughout the whole extent of the superior portion of the digestive canal. The large intestines are, however, ordinarily free from disorder; and, when they are implicated, the particular symptoms give notice of it to the attentive practitioner. In proof of this theory, Broussais asserts that all the modifications of the *gastro-enteritis* present the following symptoms: loss of appetite; more or less of urgent thirst; on the centre of the tongue a coating, which is variable in thickness, density, and colour; and, about the point and lateral parts of that organ, a redness that varies in colour from a rose-tint to the most fiery hue: appearances always noticed by authors who have written of fever, but which M. Broussais considers as most positive and constant signs of gastric irritation. The heat of the skin being increased, particularly about the abdomen and the epigastric region, and its conveying a sensation of roughness to the hand, is generally, according to this author, the effect of irritation of the mucous membrane of the digestive organs. The morbid actions, manifested in the nerves and the brain, as depression of spirits, morosity, cephalalgia, even the most profound stupor and depression of the nervous power, or, on the contrary, the most furious delirium, are considered to be the result of sympathy with the stomach and small intestines; as also the violent and almost insupportable pains in the joints which attend some fevers.

In examining the most frequent causes of febrile diseases, M. Broussais thinks we find evidence of existing irritation of the mucous membrane of the stomach and small intestines, because those causes act, either directly or indirectly, on the digestive system. Thus, repeated errors of regimen, the ingestion of acrid and irritating substances, the influence of putrid miasmata, &c. appear in the first order; amongst those of the second may be counted those miasmata which, being received into the system through the skin, or by the respiratory or digestive organs, always evince their influence on the latter; excessive heat of the atmosphere, which excites the skin, and sympathetically the stomach and small intestines, &c. Moreover, gastric irritation, as all authors have observed, is very often the precursor of *gastritis*, in the common application of this term, or of gastric, mucous, and ataxic fevers, which succeed each other in the above order in the same individual. The causes that produce typhus, yellow fever, and plague, sometimes confine their influence to the determination of a slight degree of gastric irritation. In the progressive increase of the symptoms which characterize the passage of the malady from the most trifling to the most violent form, Broussais thinks it is absolutely impossible to observe any exact period at which the affection precisely changes in its nature: every thing, on the contrary, indicates that it is the same organic lesion, acquiring more intensity, and producing more alarming sympathetic affections. He therefore sees no reason which should authorize us to divide the collection of symptoms into two, three, or more, sections, and to say that two or three different maladies have succeeded to each other.

From the effects of medicines, which may lead us to recognize the nature of diseases he still sees further corroboration of the theory in question. Having shown that antiphlogistic measures are those which most frequently succeed in the maladies of which we treat, and that the fortunate results he has obtained from their application are beyond any comparison in extent with the success that has ensued from contrary modes of treatment; he rashly infers, that tonics and stimulants increase the febrile commotion, because they stimulate the inflamed surface. But the strongest evidence of the theory of Broussais is drawn from his numerous dissections. "On the termination of *gastro-enteritis*, or of the numerous maladies which

which represent the different degrees of that affection, we always find the consequences of inflammation of the digestive canal; but the aspect and nature of these remains of organic irritation present several varieties, the knowledge of which is of considerable importance. When the disease has been but of short duration, we sometimes find the tunics of the stomach and intestines injected with blood, and presenting throughout their whole extent, even on their external surface, a rose-coloured hue that is not natural to them, without discovering manifest inflammation of any determined portion of the mucous membrane. This shows that these organs have been the seat of irritation that has occasioned an inordinate afflux of blood to those parts, but that inflammation had not developed itself. We may compare this state to that of apoplexy, where the vessels of the brain are found distended with blood, without any effusion having taken place. It would not, however, be right to represent to ourselves the mucous membrane as little coloured with blood during life as we may find it after death: the tongue is very often of a bright red colour in the patient, but becomes pale and discoloured in the dead body. It seems that irritation must have continued for a considerable length of time to render the colour of the parts permanent after death; that is to say, to combine a certain quantity of the red fluid with their tissue."

In general, whatever may have been the disorder observed in the superior parts of the intestinal canal, the inferior portion (that is, the large intestines) is unaffected. But, when gastro-enteritis has been accompanied with diarrhœa or dysentery, we find traces of inflammation of the latter parts also; this extent and complication of organic lesion constitutes the epidemic dysentery.

A theory similar to this has much obtained in America. Dr. Chapman, professor of medicine in the university of Pennsylvania, (in his *Elements of Therapeutics*), states, that "fever, whatever may be the cause, is always a disease of *sympathy*, having the primary link of its ultimately lengthened and complex chain in the stomach. It is upon this organ that contagion, marsh-effluvia, and other noxious matters, act; and hence, precisely as in the cases of poison, a local irritation at first occurs, which, if not at once arrested, spreads itself, by multiplying the trains of morbid association, till the disease becomes general, involving more or less every part of the animal economy."

Dr. Harrison (in the *Gulstonian Lecture* for the year 1820) has adopted a theory identical with that of Broussais. He says, "Fever I consider to be a derangement of certain functions of the body, dependant on irritation of some particular part, which becomes a cause of disturbance to the rest of the system by means of the sympathy existing between its several organs. But irritation of any part will not give rise to fever; and it appears, that it is irritation of *one organ solely* that will produce this effect, and that organ is the *mucous membrane*. The functions deranged in fever are those of the secretory organs: hence the morbid state of the secreted fluids, and the alteration of the temperature of the body. From the derangement of these functions arise all the essential phenomena of fever. The increased frequency of the action of the heart and arteries, and the disturbance of the *intellects*, which ordinarily accompany it, are *accidental phenomena*, and are not necessary in order to constitute fever. The intellects are often not disordered; and we not unfrequently observe typhous fever run its whole course without any increased frequency of the pulse.

"Disturbance of the functions of the brain is a *general attendant* on all severe febrile disorders, and, as it is here shown, is an effect of the local disease already described; the delirium being in a *direct ratio* with the inflammation of the mucous membranes; as indicated by

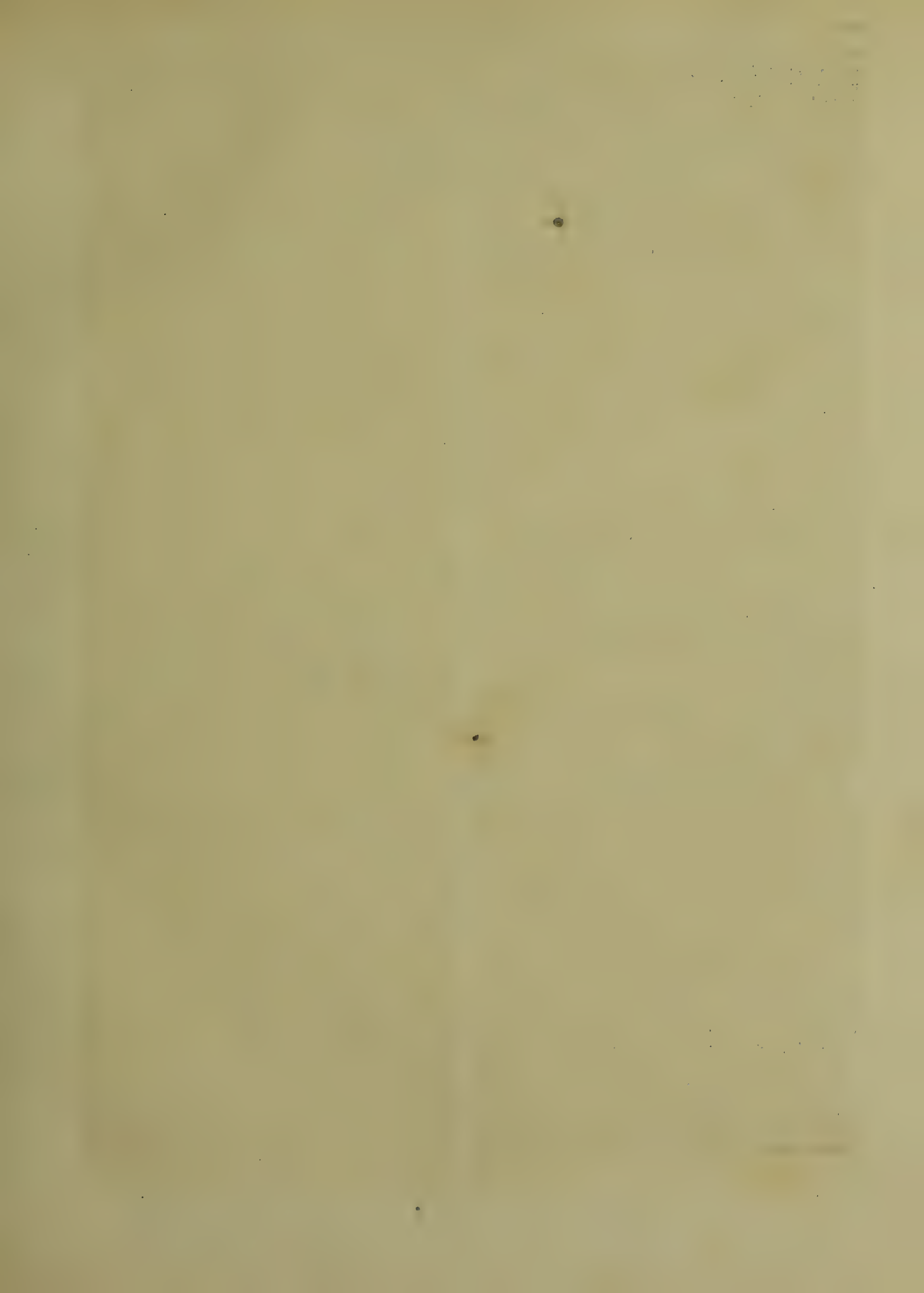
the inflamed conjunctiva, and other evidences of this state." Dr. H. likewise asserts, that the most strongly marked cases of inflammation of the mucous membrane of the stomach often commence in this way. The patient at first suffers an inordinate craving for food, which is not immediately removed by the introduction of aliment into the stomach; it however usually subsides in about half an hour or so; but it re-appears soon afterwards with increased violence; and in a short time, as a few days, especially if stimulating food is taken, it becomes a sense of absolute pain, attended with nausea, vomiting, and disgust for every kind of alimentary matter, except cool and unirritating liquids. This has often been observed in yellow-fever, the origin of which is one of the most severe forms of inflammation of the mucous membrane of the stomach and duodenum. The disorder of the stomach above described is not unfrequently the only sign of the approaching disease for one or two days; and we may often witness the same circumstances in the several forms of fever that occur in our own climate.

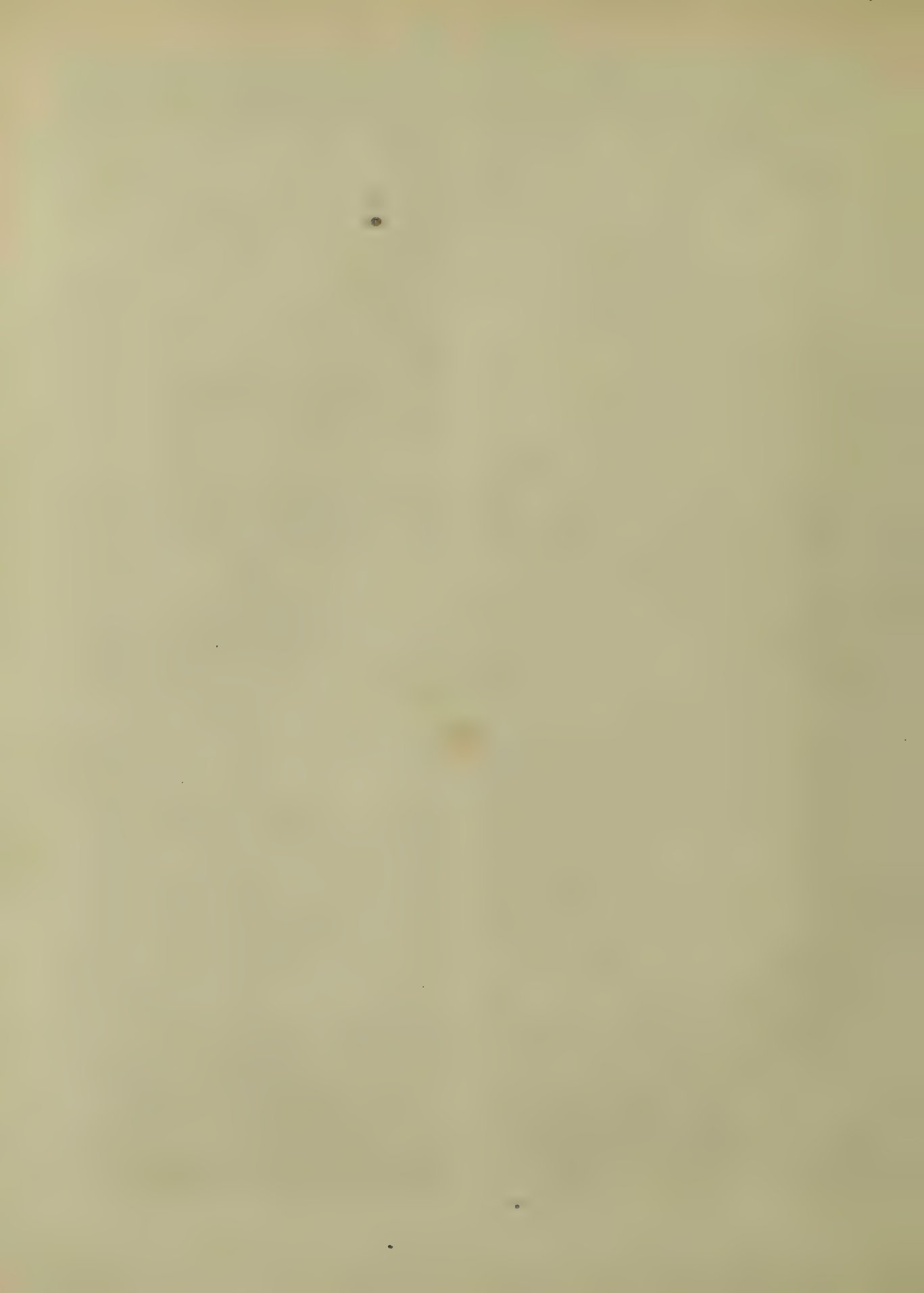
"Fever does not immediately result from irritation of any other part. We find extensive and very severe inflammation of serous and cellular membranes, and of the fibrous and bony structures, and no fever exists: but, if the irritation of any of those parts be participated by the mucous membranes, all the phenomena of fever immediately appear."

This theory has been by some confounded with the luminous one of Dr. Jackson; but it certainly differs widely in this point. Dr. Jackson shows that the mucous membrane of the stomach is the part which ordinarily receives the impression of contagious effluvia, and that the same membrane does frequently take an inflammatory action; but he is far from asserting with Broussais and Harrison, that inflammation of this membrane is the essential cause of fever; i. e. that without which it cannot exist. Again, M. Broussais is conscious that the first impression giving rise to the phenomena of fever always affects the *mucous membrane of the stomach*, either from the exciting cause having been immediately applied to this organ, or from its sympathising with some remote part in a state of irritation; and, unless such a sympathy happens in the latter case, he considers that real fever cannot arise. Dr. Jackson equally inculcates the doctrine of the local origin of contagious fever, but he does not fix this origin in any part exclusively; and he, besides, considers that *the skin itself*, properly speaking, or the cutaneous envelopment of the exterior of the body, as well as the mucous membrane of the lungs and alimentary canal, may be the part first affected; and that the irritation of this organ may excite in the system the whole of the phenomena to which the generic term *fever* has been applied, without the mucous membrane of the stomach being necessarily interested in the production of the series of symptoms; though he states that such an implication does take place in by far the greater proportion of instances.

The other point of difference, is the part of the nervous system which forms the medium through which the symptoms are developed; though the reality of a difference in this respect is not very evident. Dr. Jackson designates it as the *sensorium*; by which it appears he means the cerebral system: though he may intend only to signify the principle of *sensibility* generally, without specifying the particular parts in which it may be seated. M. Broussais considers the ganglionic nerves as the essential organs by which the sympathies in question are produced.

The next pathologist whose theory of fever demands our attention is Dr. Nicholls. We quote from his excellent "*Pathology*." A particular and methodic analysis of the symptoms which constitute the several stages of the morbid condition of the system which is thus termed, leads him to conclude that the *early stage* of it results





results from "diminished sensibility of the nervous system; diminished action of the heart; a contracted state of the small arteries." The *height* of it, from "increased sensibility of the nervous system; increased action of the heart; increased flow of blood through the smaller arteries, the opposition which is made by the exertion of the contractile power of these vessels being overcome by the increased action of the heart." The *decline* from "diminished sensibility of the nervous system; enfeebled action of the heart; relaxed state of the small arteries."

The respective states of the several stages above enumerated, Dr. Nicholl considers, may occur in either of the three following orders: "1. Contraction of the small arteries; diminished action of the heart; torpor of the nervous system. 2. Diminished action of the heart; torpor of the nervous system; contraction of the small arteries. 3. Torpor of the nervous system; contraction of the small arteries; diminished action of the heart."

Adverting then to the subsequent phenomena, Dr. Nicholl says, that "these three states having existed an uncertain time, a new order of states arises. The action of the heart becomes increased, increased sensibility of the nervous system takes place, and an increased quantity of blood is received by the small arteries. These three changes may take place in varied order; for instance: the increased action of the heart may first arise: this may produce a removal of the torpor of the nervous system; and it may, by increasing the momentum of the blood, overcome the resistance which is offered by the exertion of the contractile power of the small arteries to that fluid. Or, the sensibility of the nervous system may become increased; and to this altered state of that system may succeed increased action of the heart, and a more copious flow of blood through the small arteries. Or, if the contracted state of the small arteries give way, a more free and powerful action of the heart may follow, and the torpor of the nervous system may be removed."

The states which produce the symptoms of the second stage of fever may, then, occur in either of the three following orders, viz. 1. Increased action of the heart; increased flow through small arteries; increased sensibility of nervous system. 2. Increased sensibility of nervous system; increased action of heart; increased flow through small arteries. 3. Diminished contraction of small arteries; increased action of heart; increased sensibility of nervous system.

"Having arrived thus far in our inquiry, let us return to the states which produce the symptoms of the first stage of fever. Let us suppose a case in which *increased contraction of the small arteries* is the first effect of the primary cause of fever. In such a case, the resistance offered by those arteries to the current of the blood may induce an obstructed state of the general round of the circulation, whence will ensue a turgid condition of the larger arterial and venous trunks, and of the cavities of the heart; and from these effects will arise an oppressed and an over-powered state of the action of the heart. The obstructed state of the circulation will lead to a turgid state of the cerebral blood-vessels; which effect, as well as the want of a free supply by those vessels of blood which has duly undergone the pulmonic process, will induce torpor of the cerebral structures, and, from the torpid state of those structures, as well as from the diminution of the quantity of blood received by the small arteries, will ensue diminished sensibility of the nerves in general. Thus will the several causes of the symptoms of the *early stage* of fever be present.

"The action of the heart, at first overpowered by the resistance offered to the blood by the small arteries, and still more enfeebled in consequence of the diminished sensibility of the nervous system, may gradually become increased. It may become increased, possibly, from its own powers of contraction having acquired an accumulation of energy during its oppressed state, or in consequence of increased sensibility of the nervous system; or

perhaps, in some instances, owing to a diminution of the contraction of the small arteries, and a consequent diminution of opposition to the action of the heart. Should the action of the heart become increased, the momentum of the blood will be increased, and consequently the resistance offered by the small arteries may be borne down; in which case the freedom of the circulation will be restored. The removal of the obstructed state of the circulation, and the distribution of an increased quantity of blood throughout the nervous system in general, will remove the causes of torpor of that system. Torpor of the cranial brain is, in many instances, succeeded by a degree of sensibility of that structure greater even than that which immediately preceded the insensible state of it. This is constantly the case after sleep. So also an insensible state of the nerves in general is, in many instances, succeeded by a degree of sensibility greater than that which immediately preceded the insensible state. In the case under consideration, then, it may happen that the torpor which prevailed in the early stage of fever may, after it has existed for some time, gradually be resolved into a state of increased sensibility. The presence of increased sensibility of the nervous system will be followed by increased action of the heart, and by the flow of an increased quantity of blood through the small arteries. Thus may those states be formed which give rise to the symptoms attendant on the *second stage* of fever.

"Suppose that torpor of the cerebral structure is the first effect of the primary cause of fever. Such a state will give rise to general insensibility. The action of the heart will be diminished, and the contraction of the small arteries will be increased. The increased contraction of these arteries will, as we have seen, tend to produce an enfeebled action of the heart; and a diminution of the action of the heart leads, as we have also seen, to increased contraction of the small arteries. Thus may the causes of those symptoms which attend the early stage of fever be present.

"If the torpor of the cerebral structures, after it has existed for an uncertain time, subsides, and is succeeded by a degree of sensibility even greater in degree than that which preceded it, such new condition of the cerebral structures will be attended by increased sensibility throughout the nervous system generally: increased quantity of blood will flow through the small arteries. Thus those states will be established which give rise to the symptoms attendant on the *second stage* of fever.

"If diminished action of the heart be the first effect of the cause of fever, diminution of the momentum of the blood will ensue, to which will succeed increased contraction of the small arteries and torpor of the cerebral structures, and consequently, a general diminution of the sensibility of the nervous system. And thus those states will be formed which produce the symptoms of the *early stage* of fever.

"When these states have existed an uncertain time, if, as we have supposed, the heart be enabled, from changes which take place within itself during its state of inactivity, to act with a degree of force even greater than before; the momentum of the blood will be increased, and the resistance of the smaller arteries will be overcome. The torpor of the cerebral structures will be removed, and a preternatural degree of sensibility of those structures may arise, not only as a consequence of an increased flow of blood through their blood-vessels, but possibly, as we have supposed, as a consequence of the previous state of torpor. The increased sensibility of the cerebral structures will induce a general increase of sensibility throughout the nervous system, and will cause the action of the heart to be still more forcibly exerted. Thus, in various ways, those several states which characterize the second stage of fever will be established. During the existence of the second stage of fever, although an increased quantity of blood flows through the small arteries, yet this increased flow appears to arise, in the

generality of cases, not from cessation or diminution of contraction in those vessels, but from the increased action of the heart enabling the blood to force its way into, and through, these arteries, in spite of the opposition which is offered by their contractile power to that fluid. So that, in the second stage of fever, there is, as it were, a continued contest and struggle between the action of the heart and the contractile power of the small arteries, the balance of power being constantly in favour of the former.

"We now proceed to the consideration of the last stage, or the *decline* of fever. We observe that, whenever a high degree of sensibility of the nervous system has existed for some time, it is, sooner or later, succeeded by a state of torpor, the degree of which is proportionate to the duration and the degree of the preceding sensibility. We also find that, when a high degree of action has been kept up for some time by the heart, a languid action of that organ sooner or later succeeds; the degree of languor being proportionate to the duration and the degree of the preceding strength of action. When a high degree of resistance to the momentum of the blood has been offered, for a length of time, by the contractile power of the small arteries, the exertion of that power will, sooner or later, become enfeebled, or will be suspended; the diminution of that exertion being proportionate to the degree and duration of its previous activity.

"We have traced the various ways in which those states which characterize the second stage of fever may be formed. Let us suppose that, in either of those ways, these states have been produced. The high degree of sensibility of the nervous system; the high degree of action on the part of the heart; the strong, but unavailing, resistance of the small arteries, may severally last an uncertain time. The natural consequence of each of these states will be, as we have just seen, the formation of an opposite state. The high degree of sensibility will give place to torpor; the powerful action of the heart will subside into feeble contraction; the stubborn resistance of the small arteries will give way. Accordingly we find that these natural consequences are precisely the occurrences which are met with in the last stage of fever. The sensibility of the nervous system becomes diminished in proportion to the duration and degree of its previous increase. The action of the heart becomes feeble. Both these new states favour the increase of each other. The contraction of the small arteries gives way; the struggle between these vessels and the heart is at an end, so that the contraction of the heart, although enfeebled, may still be able to carry on the circulation of the blood; and thus an obstructed, or a stagnant, state of the round of the circulation, which would otherwise result from the languid action of the heart, may be prevented.

"It appears, then, that both in the first and in the last stages of fever, the sensibility of the nervous system and the action of the heart are diminished; while, in the early stage, the contraction of the small arteries is increased; whereas, in the decline of fever, it is diminished or altogether suspended. The different state of the contractile power of the small arteries, then, appears to constitute the leading distinction between the character of these two stages of fever. From the result of our investigation, it appears that the states which characterize the second stage of fever are the consequences of those states which usher in fever; and that the states which constitute the third stage are the natural results of those which are met with in the second stage. It follows then that the states attendant on the third stage, as well as those which mark the second stage, are the consequences of those states which appear in the first stage of fever."

Before we proceed to examine the justness of these views of fever, we shall present to our readers a history of those phenomena. It is now pretty generally acknowledged, that the division of the fevers of this country into *synocha*, *synochus*, and *typhus*, is not founded in

nature, but engendered by hypothetical notions in the brain of Cullen. On this account we shall proceed to say, that, of fevers in general, the commencement is commonly marked by some degree of languor, lassitude, and general uneasiness; the patient feels himself ill, without being able to refer his uneasy feelings to any particular part of the body. There is also a listlessness, or a desire frequently to change the posture, but at the same time the sense of weariness disposes the patient to resist this inclination; the motions when made are sluggish, and frequent yawning and stretching accompany the attempt. The mind is affected in a similar way; it cannot rest upon any object; the attention is not under the command of the will, but wanders from one subject to another; and, as the ability of exerting the muscular powers becomes diminished, there is likewise an inability of exercising the faculties of the mind; the patient cannot think or reason, even upon his ordinary affairs, with his usual ease. Along with these symptoms, but more frequently after them, he feels a sensation of cold, commonly first in his back, but afterwards over the whole body; the same kind of sensation that he feels when surrounded by a colder medium than he is accustomed to: he wishes, therefore, to go near a fire, or into the rays of the sun, or to put on warmer clothing. At the same time the face and extremities are observed to be pale, the features shrink, the bulk of every external part is diminished, and the skin over the whole body appears constricted, as if cold had been applied to it. This sensation of cold varies much more in different instances of incipient fever than the languor and lassitude before mentioned; in some cases it is very slight, in others not at all felt or noticed; whilst in many instances, particularly in the intermittent fevers, it becomes so great as to produce a tremor or shaking in all the limbs, with a chattering of the teeth and frequent rigors of the trunk of the body. In this state, the actual heat of the surface, whether measured by the sensations of a by-stander or a thermometer, is considerably diminished; in the extremities in particular it is many degrees below the standard of health. Not only on the surface, as is generally imagined, but even over the whole system, the heat is probably diminished; the air expired from the lungs feels cool to the back of the hand, held near the mouth. Dr. Currie states, that he has found the heat under the tongue, and at the axilla, as low as 94, 93, and 92, degrees of Fahrenheit's thermometer. (The healthy temperature of the human body, it may be observed, is about 98° of the same thermometer.) Dr. Fordyce affirms, that 94° was the lowest degree of heat that he had witnessed under the same circumstances. (First Dissertation on Fever, p. 40.) The sensations of the patient, however, do not always correspond with the actual degree of cold, as measured by the thermometer, or by the sensations of others; for it has been remarked, especially towards the termination of the cold stage of the fever, that the patient feels himself cold, even on those parts of the body which are shown, by the application of a thermometer, to be of the natural heat, or even hotter than they usually are in health. With this state of coldness, the sensibility of the body is considerably diminished; all the sensations, but especially those of touch and taste, are less accurate and distinct than in the healthy state. Dr. Fordyce remarks, that, "in the attack of fever, such a degree of insensibility, with a feel of coldness, has in many cases taken place, that even hot substances have been applied in such manner as to coagulate, nay perform the chemical analysis of the part, without any sensation of heat having arisen in the mind of the patient." (Loc. Cit. p. 49.) The diminution of the faculty of sensation is very various in different instances of the attack of fever.

Upon the first approach of febrile languor the pulse is not always altered in respect to frequency, but it always becomes weaker than before; sometimes it is also slower than

than in health for a short time; but, as the sense of cold increases, it becomes smaller, and gradually more and more frequent, and often irregular. While the contractions of the heart and arteries are thus feeble, all the secretions of the system are likewise diminished. The tongue and mouth become dry and clammy, in consequence of the diminished supply of saliva and of the mucus of those parts; the skin also becomes dry, as well as pale and cold, there being little or no matter of perspiration poured out. The changes in the urine are still more remarkable; the impaired action of the secretory vessels of the kidneys is evinced by the diminished quantity of the urine at this period of fever, as well as by the paleness of its colour, in consequence of its holding less of the mucilaginous and saline parts in solution than in health, and by the absence of any cloudiness or deposition when it cools. There is generally also a smaller quantity of feculent matter evacuated from the intestines at the commencement of fever, or in other words a degree of constipation, which implies a deficiency of the fluids secreted from the inner surface of the alimentary canal, as well as of the bile and pancreatic liquor, by which the faces are rendered more liquid and moveable, and the bowels are stimulated to action. Analogous to these changes in the state of the secretions are the sudden and considerable detumescence of swellings, which may happen to subsist on the surface of the body, and the drying-up or cessation of the discharges from ulcers and wounds, during the cold stage of fever.

The respiration also suffers some change in the attack of fever, being often short and frequent, and sometimes attended with a cough, more particularly in intermittent fevers. There is at the same time a great anxiety, or a sense of weight, fullness, and great uneasiness, in the breast. This distressing feeling, which has been thought by some physicians a pathognomonic symptom of fever, and hence denominated *febrile anxiety*, is totally different from, and independent of, the general uneasiness all over the body, which was before mentioned, and often occurs in a very disproportionate degree. It resembles that anxiety which takes place from grief, fear, and other depressing passions of the mind, and which is also accompanied by paleness, and diminution of size of the veins which are seen on the surface. The patient likewise respires irregularly, as one under the influence of the passions just noticed, and frequently sighs deeply, as if to free himself from the load that oppresses the region of the heart.

At the beginning of the attack of fever, sometimes as the very first symptom, but often later, a dull pain is felt in the small of the back, which seems to occupy the lumbar vertebræ, but is not accurately referred to any particular point. It is very similar to the pain which arises from weakness or fatigue; but, unlike that, according to Dr. Fordyce, it is equally felt in the horizontal as in the erect posture of the body. The head at the same time is affected with pain, which is commonly seated in the forehead over the eyes, and feels to the patient as external; sometimes it likewise occupies the back part of the head; and occasionally it is felt all round the head. It varies much in degree, but commonly increases as the attack proceeds; it is usually attended with a sense of weight, and is often augmented by light falling upon the eyes. A similar pain generally arises all over the body, which the patient often describes as seated in all his bones, without being able to particularize in what part of the body it is felt. Sometimes it is more particularly confined to the larger joints; and it is occasionally attended with great soreness, as from over-fatigue. Such soreness, however, is more commonly confined to the subsequent periods of the disease.

From the commencement of the attack of fever the natural functions are always deranged. The changes in the appearance of the tongue are among the first indications of this derangement. At first the tongue appears

to be thinly covered on its upper surface with an extremely viscid fluid, especially in the middle and towards the root, the edges and point being nearly free from it. The under surface of the tongue, below the point, is scarcely ever covered with this matter. Sometimes, at the very beginning of the disorder, the covering of the tongue is a solid crust of a whitish colour, adhering so firmly as to be incapable of being scraped off; sometimes it verges towards a brown colour. At the approach of the cold stage of fever the stomach is commonly affected; the appetite for food ceases, and aversion even to the sight or smell of meat often takes place. Dr. Fordyce remarks, that he "has known several instances where persons, sitting down to the table with a strong appetite, an attack of fever having suddenly taken place, in less than two minutes they have been unable to eat any thing, and have been seized with perfect aversion even to the smell of food." (Loc. cit. p. 93.) Sickness at the stomach often comes on at the first attack, and this is increased occasionally to such a degree as to produce vomiting. More commonly, however, this does not take place at the very commencement; but the disinclination to food increases gradually to nausea, then to vomiting, which in some cases is very severe, not only the contents of the stomach being evacuated, but likewise those of the duodenum, and of the glands, the secretory ducts of which open into it. Bile, therefore, and the pancreatic juice, are thrown up, together with the contents of the stomach, and the other fluids secreted into the stomach and duodenum. Of these fluids, however, the bile is the most conspicuous from its colour, taste, and smell; and it has therefore often been observed by practitioners, while the gastric and pancreatic and other juices secreted into the duodenum, as they are not very conspicuous from their sensible qualities, have not been taken into the account. Combined with the sickness and aversion to food, there is generally a considerable degree of thirst.

Few other symptoms, which are observable at the commencement of fever, remain to be mentioned. The state of the countenance is very peculiar and characteristic, from the moment of the attack. It not only becomes pallid, or of a dirty hue, in common with the rest of the surface of the body, but it assumes an expression of dullness or heaviness, partly in consequence of the languid action or relaxed condition of the muscles of the face, and partly from the same condition of the muscles of the eye-ball, by which its form and motion are altered, and its usual brightness and quickness are impaired. The disposition to sleep is diminished or lost; or, if it occurs, the repose is short and interrupted, and very imperfect, so that there is much dreaming, during which the ideas that present themselves are mostly of an unpleasant kind.

When the sensation of cold, and the attendant symptoms, have continued for some time, (the period being very various in the different kinds of fever,) the cold becomes less violent, and is alternated with flushes of heat. In the more severe continued fevers, it frequently happens that the cold is not permanent for any length of time, but that this alternation of chills and heat takes place from the beginning. By degrees the cold goes off entirely, and a heat greater than natural is extended, at first unequally in different parts, but at length generally over the whole body; but even when it is so far advanced, that the heat, measured at the axilla or under the tongue, is greater than the standard of health, a slight accession of external cold will produce a general chilliness. There is no regularity in the restoration of the heat to the surface; in some parts the heat is above what is natural, while in others it remains below this standard; and hence arises that mixed sensation of cold and heat, which every one acquainted with fever has experienced, in the transition from the cold to the hot stage of the paroxysm. This inequality of the distribution of the heat is less in the simpler forms of fever, and greater in those which

are more complicated and irregular. In general the sense of cold predominates, even after a morbid heat has taken place at the axilla, under the tongue, and in different parts of the thorax and abdomen. At length, however, the heat of the surface becomes general and uniform, rising to 102, 103, 104, and sometimes 105, of Fahrenheit's thermometer. Different authors indeed speak of febrile heat four or even five degrees higher than this; but such heat never occurred under the observation of Dr. Fordyce or Dr. Currie, the best authority on this subject: Dr. Bateman also had frequently employed the thermometer, in cases of continued fever, and never observed a higher temperature of the body than 104 in intermittent or continued fever, the patients being in cool apartments, with very light bed-coverings. The sensation of heat becomes at length strong and steady, and the accession of external air does not produce a return of chilliness as before; this sensation is most powerful in the extremities, particularly on the palms of the hands and soles of the feet.

The increase of the circulation takes place at the same time as the returning heat, and often in the same unequal manner, being evidently greater in some particular parts than in others. Thus it frequently happens, that one part shall become red and enlarged, one arm, for instance, while the other is pale and contracted; the veins of the one being full, and the blood flowing in them more rapidly, while those in the other remain contracted. This shall continue for some time, when the parts become affected in the opposite way; the arm which was florid and distended becoming pale and contracted, and *vice versa*. This shifting, however, remains but a short time in *simple fever*, perhaps not above half an hour; in the paroxysms of *intermittents* it continues longer, and still longer in the first attack of *continued fever*. Universal redness at length takes place; the features of the face and other parts of the body recover their usual size, and become even more turgid; and the superficial veins evince the greater circulation now going on through them by their fullness and increased size. The skin is relaxed and smooth, no longer exhibiting the goose-skin appearance by its contraction round the little glands and roots of the hair; but it continues for some time dry. The pulse now becomes fuller and stronger, and its frequency continues or is still farther increased; in *simple fevers*, it beats occasionally at the rate of 140 or 150 strokes in a minute, with a considerable degree of fullness and hardness (Fordyce); but in the hot stage of *intermittents*, and in the heat of *continued fevers*, it is most commonly from 90 to 110 at this early period of the disease; subject, however, to great variation according to the constitution of the patient, and the type of the fever. The respiration, though more free than during the chilliness, continues still frequent, and accompanied by a sense of load and anxiety, which the patient endeavours to remove by occasional laborious efforts, and deep sighing. The secretions still remain diminished; the skin is parched, no perspiration breaks forth; the tongue and mouth are also dry and parched, and the fur on the former becomes thicker; the urine, though it becomes higher coloured than in the cold stage, remains transparent, and deposits no sediment; and the bowels are costive. The thirst is considerably increased as the heat advances; the nausea and vomiting gradually diminish, but the aversion to food is augmented.

The corporeal strength and the mental powers become more oppressed; the sensibility, however, is restored in general with the returning circulation and warmth of the surface; sometimes it becomes even more acute than in the healthy state, so that the skin is more easily irritated, the eyes are offended with the light, and the least noise is heard with pain, and greatly disturbs the feelings of the patient. The attention becomes less under the control of the will, and the faculty of recollection and the reasoning power are exerted with difficulty, and im-

perfectly, so that some confusion of thought takes place, which often arises to delirium, when the hot stage is completely formed: occasionally, indeed, a degree of delirium occurs in the beginning of the cold stage, but more frequently in the subsequent periods of the fever. The numerous and distressing dreams, which constantly recur in the disturbed and unrefreshing sleep which takes place in the first stages of fever, may be considered as the slightest degree of delirium. In the next degree, the patient, when he awakes, is some time before he can attend to the impressions made on the organs of sense: he does not know his bed, his bed-chamber, or his attendants, for a few minutes, but seems to awake as it were a second time, and becomes perfectly sensible. If the delirium is in a little greater degree, the ordinary impressions of external objects produce no effect: the ideas, which float in the mind rapidly, seem to be excited without train or connexion; the association being carried on by the internal impressions alone. If the attention of the patient; however, be strongly excited by external impression, he is capable of distinguishing the surrounding objects, and of returning correct answers to questions put to him; but, that strong impression being withdrawn, he relapses into his delirious dream. As the delirium increases, with the advance of the fever, the faculty of distinguishing the objects that surround him gradually diminishes; he begins to express his ideas in words, i. e. to talk incoherently; the ideas which present themselves rapidly, and without apparent connexion, are generally disagreeable and distressing. He is sometimes in a church-yard among tombs, sometimes falling from a precipice, sometimes pursued by wild beasts, in the midst of conflagrations, &c. The delirium increasing, he becomes completely insensible to external objects. This is a common progress of the alienation of mind in fever, beginning on the second or third day, or later, and increasing to the fourteenth or fifteenth, if the patient survive so long; at first being only obvious in the night, or during the imperfect slumbers, or in the waking moments, when external impressions are fewer, or almost entirely excluded; but afterwards continuing night and day without intermission.

With the beginning of the hot stage, the head-ache is commonly increased, and appears to be dissimilar from that which took place in the cold stage. The latter pain, Dr. Fordyce remarks, "always feels to the patient as external; it is clearly a pain affecting the integuments of the head, perhaps the skin alone, at most the pericranium; but the pain which arises in the second stage is felt by the patient internally, and gives him the idea that there is something distending the head or the brain, so as to attempt to burst the cranium." (First Diss. on Fever, pp. 85 and 228.) In the mean time the carotid and temporal arteries beat full and strong, the eyes are rather red, and the face is flushed. Connected with these symptoms, which obviously imply an increased quantity and impetus of the blood carried to the brain, the organs of sensation, while fully capable of conveying impressions to the mind, nevertheless produce sometimes erroneous impressions. Thus the patient can see, but he mistakes objects; he fancies one individual is another, or that a man is a post: and his organs of hearing, which are also more readily affected, do not convey the same perceptions which the same sounds would excite in health. The same thing happens with regard to his other senses.

All the symptoms above enumerated increase from the second day of fever. The tongue grows more foul, and the crust which forms upon it thicker, until the middle of the second week. Towards the end of the second week this crust often disappears more or less, and the surface of the tongue looks raw when moist, and when dry has a polished glaze, especially about the middle, some of the crust remaining upon the sides towards the edges.

Before these symptoms, however, have advanced to the degree

degree just described, and after the general heat has continued for an indefinite time, (in the ephemeral and intermittent fevers a few hours, in continued fevers several days,) it often happens, that a partial moisture begins to appear on the skin, generally on the forehead, which extends gradually downwards to the neck and breast, and at length a free sweat takes place from the whole surface of the body. At the same time the symptoms of the first stage of the fever begin to abate, sometimes one giving way first, and sometimes another, so that it cannot be said which has the priority: sometimes the weight and anxiety about the præcordia are first observed to diminish, sometimes the change of the pulse from hardness to softness is the first obvious amendment, and sometimes the relaxation of one or other set of secretory vessels, &c. Such a change of the symptoms, terminating speedily in a restoration of the health, has been called, by a term borrowed from the Greek, a *crisis*; and the excreted fluids, which are poured forth at the time of this change, have hence been denominated *critical discharges*. The most striking appearance, both to the patient and bystander, is the perspiration, which is frequently carried to the extent of profuse sweating in intermittents and the simpler forms of fever, but sometimes amounts only to gentle moisture. While the sweating continues, all the symptoms of the previous stages abate: the preternatural heat is gradually diminished; the pulse becomes softer and less frequent; the breathing is likewise frequent, and more free, and is unaccompanied by sighing; and the anxiety and heaviness in the chest are greatly alleviated. The head ache gradually goes off, and the pains of the loins and extremities cease; the nausea and vomiting no longer distress the patient, who now acquires a relish for light nourishment; the thirst is removed; the mouth and tongue become moist, as the salivary and mucous glands pour out their fluids, and the tongue becomes gradually clean, first upon the edges, afterwards in the middle and near the root; the crust, which had formed upon it, coming off in small flakes, until the whole surface is in its ordinary state. The secretions of the liver, pancreas, and intestinal glands, being restored, the bowels begin to act, and the evacuation from them comes to its ordinary quantity. A loose stool is commonly passed at the end of a paroxysm of intermittent fever; and sometimes a diarrhoea comes on in continued fever, and, being the most obvious, is then considered as the critical discharge. The urine generally undergoes some peculiar changes in the crisis of fever; it is not only secreted in larger quantity, but, although bright and transparent when discharged, if allowed to remain for some time it is observed to grow turbid, as if containing a quantity of a yellowish-red powder, and at length to deposit flaky crystals of a dirty-red colour, commonly termed a *luteitious sediment*. Tumours, which were diminished during the cold, and more painful in the hot, stage, return to their usual size during the sweat, and ulcers again begin to discharge matter. The intellectual functions are also restored during the crisis; the attention of the patient is no longer absorbed by his uneasy feelings, the confusion of his head is relieved, and he is not harassed by the perpetual recurrence of distressing images to the mind, especially in his slumbers; a disposition to calm sleep returns; and the countenance resumes its natural expression.

It was remarked by Hippocrates, and the majority of the ancient physicians, that these *crises* occurred more frequently on particular days of the fever, which they, therefore, observed with great care, as affording both particular indications in practice, and the means of prognosticating the phenomena of the subsequent periods of the disease. Hence they called these days *critical days*. These periodical changes, happening on particular days, are however seldom distinctly noticed in this country; they seem to occur more decidedly in warm climates, where all fevers have a greater tendency to assume the

remittent form. Dr. Cullen, who believed that even in this country these critical days were observable, though less distinctly than in hot climates, explained their occurrence upon the principle, that continued fevers were in some degree disposed to take on the types of intermittents; and in this principle he has been followed by Dr. Fordyce. (See Cullen, First Lines, § cxix. Fordyce, Third Dissert. on Fever, p. 120.) But it must be remarked, that the doctrine of critical days, as taught by Hippocrates, was ridiculed by Asclepiades and Celsus, who practised in the same climate with Hippocrates, and in the same city with Galen; and Herophilus altogether denied its truth.

In this country, and in cold climates in general, continued fevers are seldom terminated by crisis. Some practitioners have maintained, that a crisis never takes place, whilst others have insisted that crises happen in all continued fevers. Dr. Fordyce justly remarks, that these extremes of opinion are both inconsistent with correct observation. It is admitted, however, that crises occur much less frequently in this climate than in hotter countries; and we think that the physician just mentioned considerably over-rated the proportion when he says, that "not above one-third part of the fevers which happen in London are terminated by a crisis." (Loc. cit. p. 126.) We believe the proportion to be very far below this statement. In the great number of instances of fever, no crisis takes place; but the disease terminates in a more slow recovery, or in death.

The symptoms before enumerated increase gradually to the end of the first, or middle of the second, week; sometimes by the seventh day the symptoms have attained their greatest severity; sometimes, too, the second week is gone through without very severe symptoms, and in other cases symptoms of the greatest distress and danger then occur; and there are all gradations between these extremes. The appearances in the second week, when the fever is not extremely severe, are often as follows. The pulse is frequent, beating from 100 to 110 in the evening, and in the morning somewhat less; the skin continues dry and hot, in various degrees; the tongue is covered with a brownish fur; the appetite is often totally lost; thirst continues, but is often complained of less during the second than during the first week; and the depression of strength is considerable. The sleep is disturbed and short, and the delirium is manifested in the intervals by the incoherence of the observations of the patient, until he is completely roused by some strong impression on the senses. In the morning the delirium is less than in the early part of the night, and the sleep sometimes tolerably quiet; even during the day there is considerable confusion, and occasionally much slowness of intellect. Hence perhaps the thirst, as well as the head-ache, and pains of the back and limbs, are less complained of, rather than from actual relief or diminution of these symptoms. The eyes have a dull and confused appearance, and commonly some degree of redness, from a number of small vessels distended with blood. Sometimes a degree of stupor comes on in the morning, and continues till the more active delirium of the night. If this state should remain, Dr. Fordyce observes, till about the fourteenth day, the evening attacks become by degrees less, but the stupor continues, with deafness, and inattention to external objects; and these appearances remain the very last symptoms of the disease.

Very frequently about the end of the second week, and often sooner, the symptoms begin gradually to diminish in severity. The first appearance of this abatement is not uncommonly a cleanness and healthy look about the edges of the tongue; sometimes, although not very generally, sweating takes place all over the body, and the skin afterwards continues moist; more commonly the moisture and softness of the skin appear in a less marked manner. The delirium abates altogether in the day, and

returns less severely at night; or, if the patient be deaf with some stupor, these symptoms are little changed in the twenty-four hours, but remain until the whole of the disease has disappeared. The depression of strength goes off, but leaves real weakness behind. The urine deposits sometimes a copious lateritious sediment for a day or two, and afterwards returns to its natural appearance. Sometimes there is a copious lateritious sediment in the urine made in the night, and a mucous one in that made in the day-time. The costiveness goes off, and the fæces return to their ordinary appearance; and all the secretions become gradually increased, not equally, but sometimes one more speedily, sometimes another. The eyes, unless when the delirium has ended in stupor, begin to have a more healthy appearance, are more composed and clearer, and express a greater attention to the objects around them. The sleep returns, but not equally; the patient sometimes passing a quiet, at others a restless, night. The appetite returns, although seldom regularly; sometimes it is voracious, but the patient is notwithstanding satisfied with a very small quantity of food; in the other cases it returns very slowly. Although the depression of strength sometimes goes off almost at once, yet it leaves the patient often with a greater feeling of weakness. Thus, however, the whole disease disappears, and the patient recovers his strength very quickly.

But, although this favourable termination of fever occurs in a large majority of instances in this country, it is nevertheless a disease frequently fatal, and, under particular circumstances, the cause of great mortality. When fever terminates fatally, the symptoms present themselves chiefly under two different aspects, but variously modified, approaching to each other, or even partially combined. The individual varieties it is impossible to depict; a knowledge of them can only be attained by personal observation of numerous cases at the bed-side of the sick. One of the forms, just alluded to, consists principally of a great aggravation of the symptoms of the hot stage. The heat of the skin continues great and pungent, and its surface dry and parched; the countenance is flushed, and the eye suffused with redness, and intolerant of light; the head-ache is severe, little or no sleep is obtained, the delirium is augmented, and is accompanied with extreme restlessness, often with vociferation, and even great muscular strength, so that the patient is with difficulty confined in bed; and the pulse is frequent, with considerable hardness. About the end of the second week these symptoms suddenly change; the delirium ends in an indistinctness or confusion approaching to stupor, the articulation becomes indistinct, the breathing laborious, the strength sinks rapidly, cold sweats and convulsive motions ensue, and the patient is cut off in a few hours. Sometimes symptoms of inflammation of the lungs supervene, and, continuing together with the delirium, hot skin, frequent pulse, and brown tongue, the patient dies with symptoms of suffocation; and sometimes inflammation of the intestines, or other important organs, being super-added to the original fever, accelerates and modifies the fatal termination. This has been called *inflammatory fever*. The other form of the disease, above mentioned, is extended more commonly to the third week, sometimes later, and the progress of the symptoms is more gradual. The depression of the muscular powers continues to increase with the disease: the eyes become sunk, dull, and listless; the countenance dejected, and of a dusky hue; the delirium is attended with a low muttering, and the patient lies without the disposition or the power of making any exertion, or he picks the bed-clothes; the tongue becomes crusted with a dark-brown or black matter, a similar fordes collects upon his teeth and lips; the pulse is frequent, beating from 120 to 130 times in a minute, and is at the same time small and feeble; the respiration is also weak, generally frequent, and interrupted with sighing or a dry cough; the voice

becomes indistinct or inarticulate; and there are slight convulsive twitches, or subfultus tendinum. At length the prostration of strength becomes extreme; the patient lies on his back, being unable to support himself in any other position, and even slides down towards the bottom of the bed; he is altogether insensible to external impressions; the sphincters, as well as the muscles of voluntary motion, are relaxed, and he passes his stools and urine involuntarily in bed; the pulse becomes very feeble, tremulous, and scarcely to be felt at the wrist; partial clammy sweats break out; the eyes appear glazed and fixed, and the other features shrink; the patient is unable to swallow; his breathing becomes irregular and laborious, attended with some noise in the throat, as the fatal event approaches; the extremities grow cold; and, often after some hours, the functions of life finally cease. When fever assumes this form, it constitutes *typhus*, or the nervous, malignant, &c. fevers of authors.

There are some other appearances, which, though not the ordinary attendants on fever, occasionally occur, especially when the disease is of a severe kind, and which have been considered as evidence of malignancy, or of putrescence. Generally in the second week of the disease, but sometimes as early as the fourth or fifth day, (see Pringle on Diseases of the Army, part iii. chap. 7. and Huxham on Fevers, chap. vii.) an eruption of spots, not elevating the cuticle, of a red colour, sometimes pale, often darker, or even of a livid or purple hue, appears on the skin: these spots, or *petechiæ*, are thickest on the breast and back, less numerous on the legs and arms, and are seldom, if ever, seen on the face. They were first described, among the moderns, by Ingrassia of Naples, afterwards more particularly by Fracastorius, under the names of *lenticulæ*, *puncticulæ*, or *peticulæ*; whence also the same appellations were given to the fevers themselves. (See Fracastorius de Morb. Contag. lib. ii. cap. 6.) *Petechiæ* appear in fever, most frequently in close and crowded situations; formerly they were very frequent attendants on the fevers which occurred in the persons under confinement in close cells, or crowded apartments in our prisons. Dr. Willan has stated, however, upon the authority of the surgeon of Newgate, that, since a general attention to ventilation and cleanliness has been adopted, *petechiæ* do not now appear in more than one case of fever in thirty in that prison. He has also added, from the observation of Dr. Bateman, physician of the Fever Institution in London, that the proportion of cases, in which *petechiæ* occur in that institution, is about one in forty-two. (See Willan on Cutaneous Diseases, order iii. p. 468.) Sometimes the purple spots are of a large size; in which case there are often also livid blotches, or stripes like the strokes of a whip, *vibices*, and hæmorrhages, break forth from the internal parts, as the bowels, lungs, stomach, and wherever the surface is covered with a very thin cuticle, as from the nostrils, the gums and mouth, &c.

A rash of a different species, which Dr. Willan has termed *roseola*, "a rose-coloured efflorescence, variously figured, without wheals or papulæ, and not contagious," (Loc. cit. order iii. genus 4.) sometimes makes its appearance in fever of the typhous type: sometimes it precedes the formation of purple spots and *vibices*, and in other cases it is seen early in the fever, but remains only for a short time without any material consequences. Some other cutaneous appearances occasionally occur, as mentioned by Huxham, (Loc. cit. p. 97.) such as milium pustules, a scabby eruption about the lips and nose, and aphthæ.

We have thus laid before our readers an ample account of the phenomena of fever, in order that the relation between those phenomena and our explanation of them may be more clearly seen. We proceed to examine the merits of the gastric theory of fever. In the first place, the assertion of Broussais, that a furred tongue and other appearances of the mouth indicate inflammation, by no means

rests on a stable foundation, because those disordered secretions may be the result of disturbance in the brain. It must be granted, however, that the red appearance of the edges of the tongue, a symptom this author particularly dwells upon, is a sign of inflammation; but every one knows that this symptom is often wanting in fevers; and, that all other appearances of the tongue may be produced by nervous irritation, altering the secretion on the surface of that organ, is clear enough, from the observed and well-known effects which the artificial interruption of nervous power to a secreting surface invariably occasions. Now that inflammation of the mucous membrane itself may produce the various appearances of the tongue in fever, we cannot admit, because local applications, known to be capable of bringing on inflammation, do not cause the display of similar appearances. Moreover, if it were allowed that inflammation of the mucous membrane do exist, it were still impossible to show by what influence general febrile commotion is produced; because inflammation in one part must be the same as in another to a certain degree; and hence fever might result from inflammation of any organ of the body without implicating the digestive tube, which does away with the theory. The effect of stimulants and tonics in fever does not require us to believe this theory, since the intimate sympathy between the stomach and brain offers a ready explanation of the fact. Independently of this, a few cases have occurred in debilitated and generally-diseased patients, in whom the exhibition of gentle stimulants has produced highly favourable consequences.

The strongest facts adduced in favour of the doctrine of Broussais, is the red appearance of the inside of the stomach on dissection, because his opportunities for carrying on dissections of that kind have been almost unlimited; but we think whoever attends to the class of patients from whom these dissections were made, and the climate they existed under, will have no hesitation in believing, with us, that this author has been led to form this sweeping conclusion as to the general sources of febrile ailments from having principally had under his care the gastric form of fever, i. e. a complication (very frequently met with) in which the stomach, sometimes solely, sometimes in common with other organs, is in a state of phlogosis. We have seen patients who have died of fever, in whom redness of the mucous membranes in the stomach was not found; and, though our very limited experience would feebly indeed counterbalance that of a Broussais, we conceive that a very few unequivocal cases overthrow the whole theory as to the essential cause of fever.

We have no hesitation in contradicting Dr. Harrison's assertion, that the intensity of fever is in direct ratio to gastric inflammation. We deny this from dissections; and we leave this and the above assertion, which we have made in opposition to Broussais, to be corroborated by the experience of our medical brethren.

It must be granted, after all, that gastritis in various degrees of severity, though usually mild, is (most probably from the same cause which produces heat and redness of the external skin) a frequent concomitant of continued fever; and that it always exists in the Exanthematicæ, or eruptive fevers.

It will be seen, that Dr. Nicholls's rationale of febrile phenomena is principally derived from the application of the two laws, that diminished sensibility is followed by excess of sensibility, and the same of contractility (or, as he styles it, *tonicity*). The extensive and accurate manner in which he has traced their operation in the long quotation we have given, will save us from pointing them out further. It will be seen, however, that this author by no means enters into those questions which the majority of writers have contended about, and which we have before detailed. There are moreover many conclusions stated of which Dr. Nicholls has adduced no proof; as where he says, in speaking of the first stage of fever, that

fulness of blood in the head will arise from want of action in the heart; and it is on this assumption that many of his reasonings turn.

Upon reviewing these various theories of fever, not one of which has maintained altogether its ground, we nevertheless see much to admire; and we shall now proceed to cull the good parts of each and exhibit them in what appears to us to be the most simple form. We shall first pass in review the causes of fever. These are of three kinds: inflammations of all parts; animal irritants, or contagious effluvia; and vegetable irritants, or marsh miasmata. A predisposition of body is required to enable these agents to produce the febrile state, since all are not equally liable to undergo their operation.

The state of body which seems to be most liable to be affected by sympathetic fever, or that from local inflammation, is plethoria; though it is to be remarked, that this does not argue that symptomatic fever is in plethoric habits the most formidable. The state of the body which disposes to the influence of contagion and miasmata, is a weakened condition of the nervous system. Thus cold, bad living, fatigue, the depressing passions, Venus nimia, have long been accounted predisposing causes. They are also in conjunction, or long applied, exciting causes, and will produce fever without contagion.

From these well-known and generally-allowed statements it follows, that the operations of febrile commotion is carried on through the medium of the nervous system; a fact long since shown by Cullen and others; but of which we have been long in making a proper use in the prosecution of this subject. We have seen that in fever the capillary system betrays the first symptoms of derangement, principally manifested in the skin. These symptoms are generally coldness or rigor, the consequence of constriction of the capillaries. Now, to this general constriction (as is explained by Dr. Park in his *Pathology of Fever*) may be referred all the phenomena of the first or cold stage of fever. For, every part having a different mode of feeling, and a different function to perform, it follows that various effects will result in different organs from the same change of circulation. And accordingly, that state of vessels which occasions a sense of cold on the surface is accompanied by the sense of nausea in the stomach. The same constriction in the capillary system of the brain produces diminished performance of the sensorial functions; or agents directly debilitating the brain may give rise to this constriction over the whole surface. However this may be, the atonic state of the brain must be looked to as the cause of the languor and lassitude, the lengthened muscles of the face, the loss of strength, fainting, &c. which are the concomitants of the first stage of fever. To the same conditions of nervous torpor and capillary constriction, we refer the feeble small pulse, the paleness of the skin, and the shrinking and diminution of size in the features, and every other external part, as well as of morbid swellings. From the contracted condition of the capillaries the other secretions are diminished, through wanting a due supply of blood. The mouth and tongue become dry from the scanty supply of saliva; the pancreatic juice, the bile, the mucous and serous excretions in the alimentary canal, being diminished, as well as the muscular action of the bowels enfeebled, the feces are not passed forwards, and costiveness takes place; the urine is not only small in quantity, but of pale colour. The heat of the body is dependent on the due supply of animalized blood and nervous power, and always increased when the ratio of these fluids is increased, is now diminished by their diminution. The diminished circulation of blood in the capillaries naturally throws a larger supply on the heart; and to this circumstance the anxiety, and sense of load about the region of the heart, the sighing, yawning, and stretching of the limbs, as well as the short and disturbed respiration, are to be attributed.

All the symptoms, then, of the onset of fever, constituting

stituting the phenomena of the cold stage, are explicable on the supposition of a depression or diminution of the nervous energy, however induced; and chiefly acting by constricting the capillaries, or by constriction of those capillaries which involve the brain in torpor. In like manner, the symptoms of the hot stage and the subsequent phenomena, in continued fevers, are referrible to an imperfect recoiling, as it were, of the nervous power, and more immediately to the increased action of the heart and arteries, and of the capillary vessels.

The heat, the redness of skin, and flushed countenance, the returning size of the external parts, the restoration or even increase of the sensibility of the organs, are all the result of the distention of the extreme vessels by the red blood, as the opposite symptoms of the cold stage were the consequence of an opposite condition of the circulation. Hence the frequent soreness of the body, which cannot bear its own pressure without pain; hence intolerance of light in the eye, and the quick sensibility to noise in the ear, both of which increase the head-ache, which is now more acute, and deep-seated: hence also diseased parts become more painful. The quick and strong pulse implies the greater force of the heart, and of the arterial action; nevertheless the dryness of the skin, and the continued suppression of the rest of the secretions, evince the continuance of a morbid condition of the extremities of the exhalants and secretors by which their functions are impeded.

This last circumstance has been variously explained. Cullen attributed it (as before stated) to a spasmodic contraction of the termination of the vessels; but, as we before showed, it did not explain how this was produced; and it seemed curious that a suspension of secretions should arise both in the hot and cold stage from the same cause. A new explanation has been promulgated by a late author, Dr. Park. He conceives that, "During the hot stage of fever, that these mouths are closed can hardly admit of dispute; as it seems impossible in any other way to explain, when the vessels to which they belong are gorged and distended with fluids, what prevents these fluids from transuding at every pore.

"In order to explain why they are thus constricted in the hot stage, and to understand the nature of these patulous mouths which perform an important part in the production of both fever and inflammation, we have only to regard them in the light of sphincters, to which they are perfectly analogous. The office of both is to retain the contents of the organ to which they belong, or to allow their transmission only at suitable times, and in proper quantity. Accordingly, the action of the sphincter appears to be vicarious with that of the organ, as its office requires it should be; that is, the sphincter relaxes when the organ contracts, and, on the other hand, the sphincter contracts when the organ relaxes. Thus, for example, when the stomach is roused to inordinate efforts of contraction by an emetic, its sphincter, the pylorus, relaxes, and bile is transmitted through the duodenum in vomiting. When the intestines are excited to contraction by a strong purgative, the sphincter of the rectum relaxes, and feces are with difficulty retained. When the bladder contracts for the expulsion of urine, its sphincter relaxes, and allows the transmission of this fluid. So likewise, when the vessels of the surface shrink, and paleness is produced by fear, a cold sweat breaks out, and the surface becomes moist. Or, when the vessels collapse from loss of blood, the same clamminess of the surface attends, and is the forerunner of syncope; and thus transpiration is increased, and not suspended, as Dr. Cullen supposed, by moderate contraction of the vessels.

"On the other hand, the sphincters and the pores alike become constricted when the organs or vessels to which they belong are relaxed and over-distended. Thus, when the stomach is distended with food, the pylorus closes,

and suffers nothing to be transmitted till the bulk of its contents is reduced by absorption. When the rectum is over-distended by immoderate accumulation of feces, its sphincter contracts, and the most obstinate constipation is apt to ensue. When the bladder is over-distended with urine, its sphincter becomes constricted, and strangury is the consequence. In like manner, when the vessels of the surface are over-distended by immoderate determination of blood in fever or inflammation, the pores then become constricted, and transpiration is suppressed. And for the same reason, the secretion of bile is suppressed in active inflammation of the liver; and that of urine in acute inflammation of the kidneys. Thus the mouths of the exhalent vessels, terminating on the external and internal surface, appear to be governed by the same laws, and to exhibit the same modes of action, as the sphincters belonging to larger organs. In the hot stage of fever, then, transpiration is suppressed, and morbid heat kept up by over-distention of the vessels exciting spasmodic constriction of their mouths; and accordingly it is to the removal of vascular distention that we must look for a cessation of that constriction, and the return of transpiration."

To us, this idea of the sphincter-like properties of the secreting vessels appears as visionary and gratuitous as the notion before mentioned of Cullen. Moreover, much must, in the relaxation of sphincters, be attributed to the form which their antecedent muscular parts oppose to them. At all events, this supposition is not required. If secretion were a process dependant on the mere straining or letting-through of certain parts of the blood, we could account well for the hindrance of secretion on the notion of contraction in the vessels; but the products of secretion depend on nervous influence; take away the nerves going to a part, and secretion ceases. Can this be because such deprivation causes a contraction of their mouths?

The alteration of the secretion in fever is thus explained. Secretion is diminished in the first stage, because the constriction of the capillaries brings to the secretors smaller quantities of blood. It is still more diminished, or it is altered or suspended, in the hot stage of fever, because, the nerves being pressed on by the distended capillaries, or the nervous power being more rapidly expended in the blood in the generation of heat, perhaps a more rapid motion in the sanguineous circulation is hindered from acting on the secretors. It matters not whether the latter be distended or contracted, or in a mean state: they are too small to receive blood; and the state of its parts depends on the faculties derived from the nerves, which we see have here lost their power.

Cullen erred in considering the hot to be an invariable consequence of the cold stage of fever. The cold stage may happen; and so great may be the debility induced, that re-action may never return; or the hot stage may be manifested at once, as in symptomatic fevers and some other kinds. The sweating stage is produced in a manner not very well understood. It was supposed by the older physiologists, as Albinus, Haller, &c. that the sweat, as well as the insensible perspiration, is a mere exudation of the watery part of the blood through the cuticle; hence it was said to arise, in fever, from a mechanical relaxation of the extreme arteries, which were supposed to be spasmodically contracted during the hot stage. But it has been observed by later physiologists, that this opinion respecting the nature of the perspiration is contrary to all analogy, and founded only upon experiments made on the dead body. The opinion of Dr. Fordyce and Mr. Cruickshanks appears to be the true one; namely, that the matter of perspiration is secreted from the blood by the capillary arteries, and thrown out on the surface by organic pores in the cuticle, (however difficult to be discovered,) connected with the extremities of these arteries; and that in this process there is not a separation



separation merely, but a new combination, as in similar instances of secretion.

It has been very generally held, that the coming-on of perspiration tends to cure fever. We do not altogether subscribe to this doctrine, though certainly sweating produces a salutary refrigeration. It seems to us, however, that it is critical, rather because it shows that the nerves have resumed their functions; that it is not so useful in itself, as in being an indication of another salutary change in the constitution. It is to the restoration of the nervous influence that we refer the re-establishment of secretion all over the body; as the moisture of the mouth, the absence of thirst, the return of appetite, and the copious flow of urine. The increase of the febrile phenomena in the hot stage towards evening, is explained by the well-known fact, that the action of the heart always accelerates at that period.

According to the views here taken, the actions of the nervous system are essential movements of the febrile state. When we consider that this is indeed the only one through which the general sympathy between the capillaries of all parts of the body can be manifested, we shall readily conceive that the brain must be the part whose morbid condition is essential to fever. Our ignorance of the structure and functions of that organ, prevents us from reasoning so hastily as to affirm with Dr. Clutterbuck, that inflammation is the condition which produces fever. But certainly it does seem, that a perpetual sympathy being established along nervous continuations, a sympathy capable of causing at their remote parts disease similar to that which gave rise to it, must in its course implicate in this same action (inflammation) a part where the vascular and nervous systems are so closely united as the brain.

The illustration we have attempted seems to embrace the symptomatic, the idiopathic, and the intermittent, forms of fever. The first we shall now dismiss the consideration of, as appertaining to SURGERY, under which article the subject will be resumed. Of the others a little remains to be said as to the agents which produce them. Of the natural agents, i. e. the atmospheric, the mental, or the terrestrial, which are daily altering the nature and constitution of our bodies, we may remark, that our present knowledge renders us quite incapable of tracing or illustrating their effects. We shall speak therefore of contagion.

An opinion has been rashly broached by some, that, because fever is often directly traceable to contagion, therefore it arises from no other cause. It has been wisely and most impugably answered, that, on this supposition, the seeds of all the manifold ills which "flesh is heir to" must have been latently contained in Adam, and that many of them must have laid in the same dormant state for hundreds of generations; as in the cases of small-pox, syphilis, &c. The more general notion, and the only one which bears the test of reasoning; is, that contagions are produced by natural chemical changes, whether external or internal to the human body; in which latter situation they re-produce their kind. Thus putrid decompositions of animal substances, the same processes acting on vegetables, or the action of the sun on the earth itself; seem, in some situations, to have been each followed by a distinct contagious fever. The contamination of the air by the breathing of many individuals, as in close places of confinement or in large theatres, has been followed by the same consequences, even when the individuals in question were all free from infectious fever. Often, however, the fevers which follow exposure to the above-mentioned agents are not transmissible from one to another, but are rendered common by the general influence of the exciting agent. It seems too, that some diseases which are not generally contagious may, under circumstances of peculiar violence and intensity, acquire this property; for, on the testimony of very eminent physicians, phthisis and croup have been

said to be infectious; erysipelas is well known to have become so on some occasions; and indeed we should not be surprised, when we consider the multifarious products of diseased secreting surfaces, that secretions of a volatile nature should be generated, and that they should be so related with our frame as to produce like actions to those whence they took their rise. But, whether in the bodies of men or out of them, this product is amenable to the action of the common agents of matter. We see diseases, which have been idly called *specific*, altering in the course of years their nature,—old ones lost, new ones arising. For the horrible leprosy of the ancients we in vain search a prototype in the medical history of our own time. The dreadful syphilis which mutilated the soldiers at the siege of Naples, is now so changed in its character, that we hardly recognize it in the ancient descriptions; and, though scarlet fever, measles, &c. hold on for centuries their unchanging course, this is no evidence against the fact, that many diffusible maladies do change by the hand of time, while all are subject (though in a minor degree) to the influence of the same agents which control similar actions of the body when called into play by other causes.

The most important part of our inquiry respecting contagion, relates to the mode and circumstances of its communication from individual to individual, and of its general spreading, with a view to discover the means of suppressing it, or preventing its extension. This enquiry is, of course, limited to the contagions which are soluble or diffusible in atmospheric air; since it is obvious that the indiffusible contagions may be avoided, by shunning the contact of the diseased. And it must be premised, that all the febrile contagions have been found, by experiments, to be propagated according to the same laws, and to be suppressed by similar means.

Whenever a contagious epidemic disease prevails, a very general alarm is excited, in consequence of a notion, that the seeds of an evil so generally destructive must be diffused through the atmosphere at large; and that, if we stir abroad, we breathe contagion at every step. This opinion has been promulgated by physicians of high rank and authority; but recent observations have shown that it is erroneous; thus at once removing all grounds for this unnecessary alarm, and directing our attention to those means of precaution and prevention which can alone effectually contribute to our security.

Without entering into the long string of authors who have supported this opinion, it is enough to state simply, that a sufficient number of facts are now known to establish the inference that the popular opinion and apprehension are groundless, and that the most malignant contagions are never conveyed to any great distance through the atmosphere; but that they are, in fact, rendered inert and harmless by diffusion in the open air, and even in the air of a well-ventilated apartment. It is also established on clear evidence, that an accumulation of contagious matter may occur, and may undergo, from the warmth of the body, a change which will increase its force; so that the strictest cleanliness in the clothes and person of the patient should always be insisted on.

Contagion is capable of being contained in unventilated clothes. A nation has been exterminated by some of its people wearing a blanket tainted with contagion; but ventilation so effectually removes this, that we are in no fear of carrying infection from one house to another in our clothes. It may indeed hang about furniture, or it may remain for some time in the air of a place where the access of fresh air is excluded.

In most cases, the contagious essence of fever remains some days in the body before its effects are manifest. In others, the attack is almost simultaneous with the reception of the contagion. Where a sudden infection takes place, a disagreeable sensation is excited at the moment

of exposure, which different persons have described differently. Some have felt a sharp taste in the mouth, as if blue vitriol were dissolving in it, but which no washing or gargling could remove. Others have compared the first impression to that of an earthy exhalation from a newly-opened grave, the sensation extending down to the stomach, sometimes exciting instantaneous sickness and shivering. Dr. Haygarth mentions that two of his patients, who were physicians, were infected suddenly by a short exposure. One of them thought that he caught the fever by creeping behind, in order to assist, his patient; the other by inspecting morbid faces. In both these cases, the exposure was such as might probably afford a full dose of the contagion. Dr. Lind is of opinion, that, in these diseases, the stools, especially if very foetid, are most communicative of contagion; next to these, the breath; and, lastly, the effluvia from the body.

The activity of contagion is not always proportionate to the appearances of malignancy in the diseased. Sometimes only one man in a ship may be seized with the *petechial* or with the *yellow* fever, says Dr. Lind, while all the rest continue unaffected. And on the contrary, fevers, of the mildest description, sometimes spread extensively. The period at which different fevers begin and cease to generate contagious effluvia is not absolutely ascertained. It seems most probable that in eruptive fevers there is no contagion till the eruption appears; and that contagion remains so long as any scab remains on the skin. This is clearly the case in small-pox.

When it is considered, that contagion *originates* in accumulated and confined animal effluvia, and is *communicated* either to those who approach, or come in contact with the sick, or by means of substances impregnated with contagious matter, and in these ways only, the means of prevention are obvious.

With respect to the casual origin of contagion, it is scarcely necessary to say, that cleanliness and ventilation, as they preclude the confinement and accumulation of the animal effluvia and secretions, will infallibly prevent the generation of the poison. Where contagion exists, its farther communication may be prevented by avoiding contact or approach to the sick, and by confining the patient to a separate room, in which, if it be kept clean, and well ventilated, it has already been shown that the contagion will be inert at a short distance from the sick; and therefore that the necessary attendants, and medical visitors, will receive no injury from respiring the air within it. In this way contagion has been prevented from spreading in large schools, and other places, where a number of people live together, as in workhouses and hospitals, of which some examples have been already given. Dr. Haygarth's rules for the prevention of infection, seem to comprise all the requisite means to be adopted in houses where contagious fever exists: they are the following.

1. As safety from danger entirely depends on cleanliness and free air, the chamber-door of a patient, ill of an infectious fever, especially in the habitations of the poor, should never be shut; a window in it ought to be generally open during the day, and frequently in the night. Such regulations would be highly useful both to the patient and nurses; but are particularly important previous to the arrival of any visitor.

2. The bed-curtains should never be drawn close round the patient; but only on the side next the light, so as to shade the face.

3. Dirty clothes, utensils, &c. should be frequently changed, immediately immersed in cold water, and washed clean when taken out of it.

4. All discharges from the patient should be instantly removed. The floor near the patient's bed should be rubbed clean every day with a wet mop or cloth.

5. The air in a sick room has, at the same time, a more infectious quality in some parts of it than in others. Visitors and attendants should avoid the current of the pa-

tient's breath; the air which ascends from his body, especially if the curtains be close; and the vapour arising from all evacuations. When medical or other duties require a visitor or nurse to be placed in these situations of danger, infection may be frequently prevented by a temporary suspension of respiration.

6. Visitors should not go into an infected chamber with an empty stomach; and, in doubtful circumstances, on coming out, they should blow from the nose, and spit from the mouth, any infectious poison which may have been drawn in by the breath, and may adhere to those passages.

Besides these precautions, we are advised to endeavour by gaseous agents to destroy the contagious pabulum. The vapours of vinegar, and those of the sulphureous acid, have been long used with some degree of success; but those of the muriatic, and still more perhaps those of the nitrous, acid, appear to be the best antidotes to accumulated contagion. The evidence of the efficacy of the nitrous-acid fume, in purifying infected places and substances, which was a few years ago laid before the House of Commons by Dr. Carmichael Smyth, was such as to induce that house to vote a national donation of five thousand pounds to him for the discovery. This vapour is easily obtained, by mixing with powdered nitre a little of the strong acid of vitriol or sulphuric acid; the latter combines with the potash, the base of the nitre, expelling at the same time the nitrous acid in fumes. (See Dr. C. Smyth's treatise on the subject.) The vapour of the muriatic acid may be obtained in a similar manner, by using common sea or rock salt, instead of nitre. Where contagion has been long pent up in close cells or rooms, it is apt even to adhere to the walls. In such cases, white-washing, with hot or newly-slaked lime, is an efficacious aid of the acid fumigations.

We are sorry, however, after all, to be obliged to admit the justice of a remark of Dr. Clutterbuck's; "that these modes of chemically neutralizing the contagious virus, while they lead to a false security, are often quite useless." For this reason, ventilation and cleanliness are the chief means on which we should place our dependence in guarding against the diffusion of fever. These are both measures of so much importance, that the profoundest physicians have not thought it derogatory to their dignity to enter into minute and particular directions for their perfect establishment. The means required are however obvious to the meanest capacity. We shall just quote a short extract from Dr. Jackson, because the fact it contains is not generally known. He says, "In cold, damp, and foggy, weather, the free admission of external air might probably be injurious; for air of that description is not calculated to absorb or dissipate the floating contagion. In this case, the strong heat of fire in open fire-stoves, so placed as to diffuse its influence into the *lower layer* of the atmosphere, has appeared to myself to be the only substitute for defect of common ventilation, and the only sure means of rectifying the air that is vitiated by emanation from the bodies of living men. Heat, as acting on the skin, probably operates favourably on the conditions of contagious fever; it evidently operates favourably, as exciting and maintaining circulation of air within the apartment. I here take leave to mention the circumstance that first directed my attention to it. The wards in the barrack in Westmoreland Fort, on Spike Island, which were allotted to the reception of the sick of the St. Domingo expedition, and which were crowded to the most extreme degree of crowding, were also in some degree cooking-places; that is, employed for the preparation of the lighter parts of diet. A large fire was necessary: and a long grate, being filled with coals, threw out a great heat, sufficient to roast a furlow of beef. This was the case in the larger wards, where there were from forty to fifty persons stowed on the floor as close as they could lie. Those who lay within a certain distance of the fire generally did well, though the symptoms of the disease were often violent;

violent; those who were near the end where there was no fire died in great numbers, though the symptoms of the disease often appeared to be moderate. The air near the fire was comparatively light, and not offensive; near the remote end it was heavy, unpleasant, almost insupportable to the transient visitors. The influence of strong heat from fire, in a sick apartment, appeared to be so useful, at least so agreeable, in the present case, that large fires were ordered to be made in all the huts and sheds on the outside of the fort which were occupied by the sick. The air in these huts, though filled with sick to overflowing, was not offensive, the progress of contagion was not active, and mortality was comparatively moderate; in fact, on the lowest scale. From that and other more recent experience, I am disposed to consider the action of the heat of fire as a most important mean of ventilation, mainly conducive in arresting the progress of contagion; the chief trust, in fact, in damp, foggy, and still, weather, through which we can expect to preserve the air of hospitals, as filled with febrile sick, from a dangerous vitiation."

Fever is generally fatal from the occurrence of inflammation of some part or texture of the body; and dissections show, according to the type of the reigning epidemic, disorganizations of the mucous membranes of the brain, the lungs, the liver, or other viscera. In a few cases, however, no topical congestions are found; and the patient seems to be worn out by continued exhaustion of the functions of the nervous system.

The treatment of fever naturally grows out of the history already given of its causes, actions, and consequences. We shall confine ourselves to a mere outline of it, from a conviction that the peculiar varieties in character, and consequently in the treatment, of epidemics, are only to be learnt by experience of the particular fever which happens to be prevalent; or, in other words, that epidemics continually vary, as was indeed the opinion of Sydenham. For similar reasons we shall omit all notice of a vast store of drugs which in particular cases have had the merit of curing fever; e. g. yeast, carbon, mustard, with many others which occur to us even at this moment.

A distinction is to be made between fever as it is simple, and as it is complicated with inflammation of particular organs. First of simple fever. This requires some difference in treatment, according to the stage it has arrived at; the stages being three; viz. the cold stage, the hot stage, and the declining stage. This division, it is proper to observe, is in some measure arbitrary, and has no exact relation to time: for, as the whole duration of the disease is extremely various, extending from a few days to as many weeks; so the continuance of the different stages, both individually and relatively to each other, is not less various; and it becomes impossible to assign a determinate extent to any one of them; added to which, they often run imperceptibly into each other. A sufficient discrimination, however, may be made between them for the purposes of practice; which is the point of chief importance.

The application of contagious virus is first made, in the majority of instances, to the stomach; and there seems good reason to think that it remains there, and produces local effects before it is carried into the circulation. It is probably on this account that an emetic often effectually prevents the development of the febrile movements: this remedy should therefore be used in early cases; and purging should likewise be resorted to, because it is sometimes difficult to establish these actions in the hot stage of fever. When the hot stage is newly formed, it is still often desirable to change the order of sympathetic actions which are established. For this purpose, the abstraction of blood till fainting ensues, followed by a brisk purge, will often entirely prevent a severe fever from running its course.

In the more severe forms occasionally met with in fo-

reign practice, the measures for arresting the progress of the malady must be peculiarly energetic. The experienced Dr. Jackson, speaking of a severe and complicated form of fever, which he characterizes as presenting itself with appearances of violent irregular vascular excitement, and local determinations which threaten convulsion and apoplexy, suffocation or engorgement of internal organs, lungs, liver, or spleen; sometimes with a strong, or what may be called a concentrated, general action, thickened and constricted skin, ardent as a live coal; a condition, which threatens to subside by internal congestion, or to explode by local external gangrene of varied form, viz. petechiæ, streaks of ecchymosis, or extensive and deep blacknesses;—gives the following judicious directions. When a certain quantity of blood, only measureable by the physician as superintending the process, has been abstracted from the arm, it is advisable that the patient be stripped naked and immersed in a warm bath of moderate temperature, the immersion continued for fifteen or twenty minutes, the skin strongly scrubbed with brushes and soap while under immersion. At the expiration of twenty minutes, the condition is to be examined with care; and, if it be then found that the mode of action has not changed, that is, if the movement has not become general and equal, it will be advisable to re-open the vein, and to allow blood to flow, while the patient remains in the bath, until the object in view be attained: that is, until the circulation be in some manner equalized. When that is done, cold water is to be affused copiously upon the head and shoulders, while the lower extremities remain in the warm bath. The course of the disease will, in most cases, be suspended, if not perfectly arrested, by the effect of the proceedings now recommended; and when that is done, the body, being removed from the bath, is to be wiped dry, and laid in bed; blisters, as means preventive of return, are to be applied to the head, neck, back, or sides, according to the predominance of the local symptoms. Friction with warm oil will be useful; emetics and purgatives promise the same benefit here, after the case is simplified, as in the preceding. A bolus of camphor, nitre, tartarized antimony and snake-root, with half a grain of opium, and two or three grains of calomel, given every five or six hours, with plentiful dilution, frequent ablution, and frequent change of bed and body linen, conduce, if the course of the disease be not totally arrested, to maintain the movements in an equal tenor until the febrile circle be completed, when healthy action may be expected to re-appear. The outline of practice now suggested, varied according to circumstances, applies to the cure of the disease in all its conditions.

These violent measures are seldom resorted to in private practice, nor are they generally required in the fevers of this country; so that, if tolerably active bleeding and purging do not arrest the disease at its onset, we let it run its course, endeavouring to conduct it favourably to its termination.

It is well known that some thirty years back the treatment of febrile diseases consisted in stimulating and exciting the body to the highest possible pitch. The folly of this plan has been of late severely reprobated; but a shadow of defence has been instituted, on this ground; that, as epidemics are always changing their character, what was useful and right formerly has ceased to be so. But this is mere delusion; for Hippocrates, Sydenham, and Huxham, and indeed all judicious practical men, bled in fevers; nor can the nature of fever itself be so changeable, as to be cured by contrary remedies, though indeed its variations in character may require a corresponding variety in treatment. We must therefore refer to the well-known hypothetical notions of debility, &c. the fatal practice of our immediate predecessors.

Bleeding is now on all hands agreed to be the chief agent in subduing the violence of fever, though there is much disagreement as to its *modus operandi*, and as to the

the extent to which it may be carried with safety. Of the various explanations which different authors have given of the beneficial operation of bleeding we shall not speak, because they will naturally be understood from the general speculations of the pathologists already passed in review. According to the notions we have adopted, that a general distention of the capillaries of the system is the cause of fever, and that an increase in the production of nervous power in the brain and spinal marrow is the cause which perpetuates this distention from one part to another, and moreover suspends the actions of secreting vessels;—bleeding must of course be advised as a measure which relieves that distention. If distention be the state of the capillary system in fever, this state must be evidently increased by the increased action of the heart, the vis a tergo thence derived acting as a perpetual dilator of the affected vessels. The distention is also of course increased by the quantity of blood. Bleeding therefore relieves distended capillaries by taking from them two causes of their unnatural condition: first, it takes away the quantity; and secondly, as the action of the heart depends somewhat on the quantity, it takes away the distending force of the latter viscus. The latter effect is still further increased if bleeding be carried ad deliquium animi, or till circulation of blood in the brain be suspended. Now, deeming as we do, that the distention of the capillary system occurs also in the brain and spinal marrow, and thus excites the nervous symptoms, we consider bleeding on the same ground a great and direct assistance to the revival of the nervous functions, and hence to the restoration of secretion. The benefit of bleeding is also to be explained on other grounds; i. e. on the supposition of the increased contraction and dilatation of the capillaries in fever. It may in such cases operate by relieving plethora, the stimulus to contractility, and by diminishing the production of nervous power, the result of increased circulation in the brain and spinal marrow. Whatever side of the question we take, the propriety of early bleeding in fever is shown. It must be remarked, however, that a low nervous fever is often formed, in which we have no right, from the products of dissection or from reasoning, to infer enlargement of the cerebral capillaries; in which, however, a high degree of nervous irritation exists, and in which local bleeding is alone admissible. It is in this form of fever that counter-irritants are very useful.

From the above considerations the propriety of bleeding as early as possible in continued fever must be considered fully established. As to the quantity to be taken away, no dogmata can be laid down on the subject; for neither the pulse, the size, the age, nor the temperament of the patient, are unequivocal guides to our practice. The consideration of these conjointly must direct us in general. The first bleeding should be carried on till the patient faints. As to the propriety of repeating the operation, the fizy appearance of the blood noticed in fever, and a certain degree of inflammation of the lips of the divided orifice in the arm, will indicate to us the affirmative; while the diminished production of heat, and diminution of the pulse, will point out when it is time to discontinue the use of this potent measure.

Purging at the commencement of fever is of the highest utility; and will often, according to the testimony of Drs. Clutterbuck and Bateman, cut short the disease. It should be excited by the most active means; e. g. by cathartics of gamboge, elaterium, submuriate of mercury and jalap, &c. (we have generally used elaterium.) The excitement thus produced on the bowels relieves the fever, both by emptying the secreting vessels, and by exciting an irritation vicarious to that existing in the brain. As the disease advances, (that is, about the sixth day,) this strong purging should give way to milder or laxative medicines, the administration of which should not be pushed further than to procure two motions in the four-and-twenty hours. The reason for not persisting long in

the use of drastic cathartics is lest inflammation be induced of the mucous membrane of the bowels; a circumstance much to be dreaded.

Digitalis is a medicine of great use in controlling the actions of fever. It seems to operate in the same way as bleeding; viz. by diminishing the action of the heart and larger arteries, it prevents the undue distention or excitement of the diseased capillaries. But it is a medicine which requires to be carefully watched. There is no rule to be laid down as to its use. We are contented, in ordinary cases, to give from five to ten drops of its tincture every four or six hours; but these doses may be quintupled in ardent fevers of great intensity, as we see the Italians are in the habit of doing, not only with impunity, but with success. (See p. 53 of this article.)

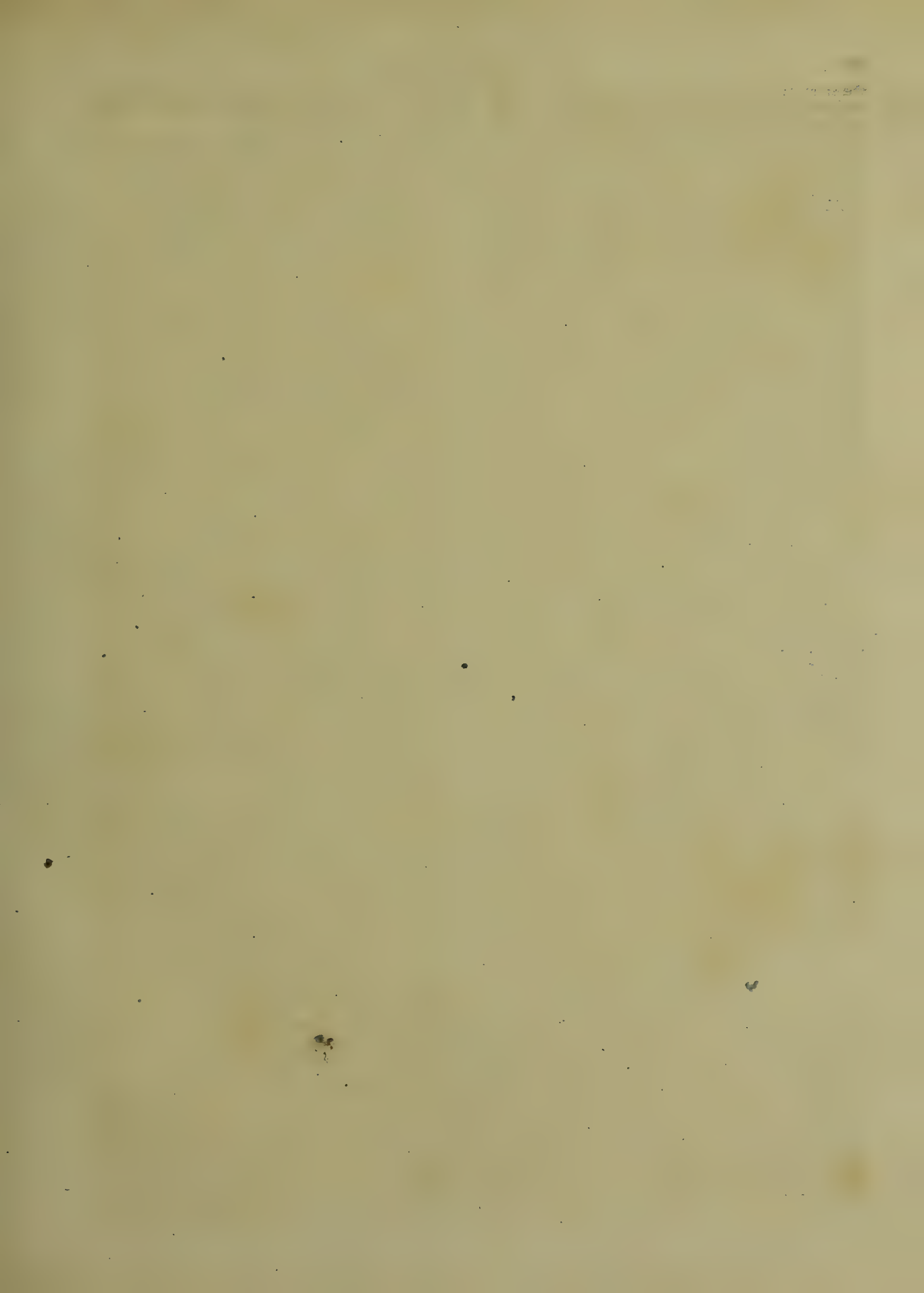
As to the *dietetic treatment* of febrile patients, we have scarcely any thing to say. The parched mouth and nauseating palate of the sufferers in question so clearly announce the painful violation of feelings which those must have undergone who were subjected to the discipline of the Brunonian school, that one almost wonders that the common sense and prejudices of mankind did not run against the injurious regimen of wine and stimulants. In the majority of cases our patients need eat nothing; a variety of cold drinks, as barley-water, lemonade, &c. may be provided for them, and allowed in the most unlimited quantities. Acid fruits may be taken freely; and this is in general all that is desired. Should sustenance be wished, thin gruel is all that should be allowed; for of the heating and stimulating effects of broths, beef-tea, &c. every one is sufficiently aware. At the same time the free current of air through the apartments in the houses of the poor, and the removal into another room of the huddled-up and dirty furniture, are also indispensably necessary. The bed-clothes, linen, &c. of the patient, should be changed at least every other day; and sponging the body with water (when maternal or anile prejudices do not oppose it) should be ordered. And let no one despise one iota of these simple (and, when uncombined, inefficient) measures; for they have saved the lives of thousands, and may be considered (in-significant as they are in themselves) among the proudest results which have arisen from the philosophy of the present age. To the cold effusion especially we are indebted for the preservation of many of our most efficient veterans at a time when the use of bleeding was not established.

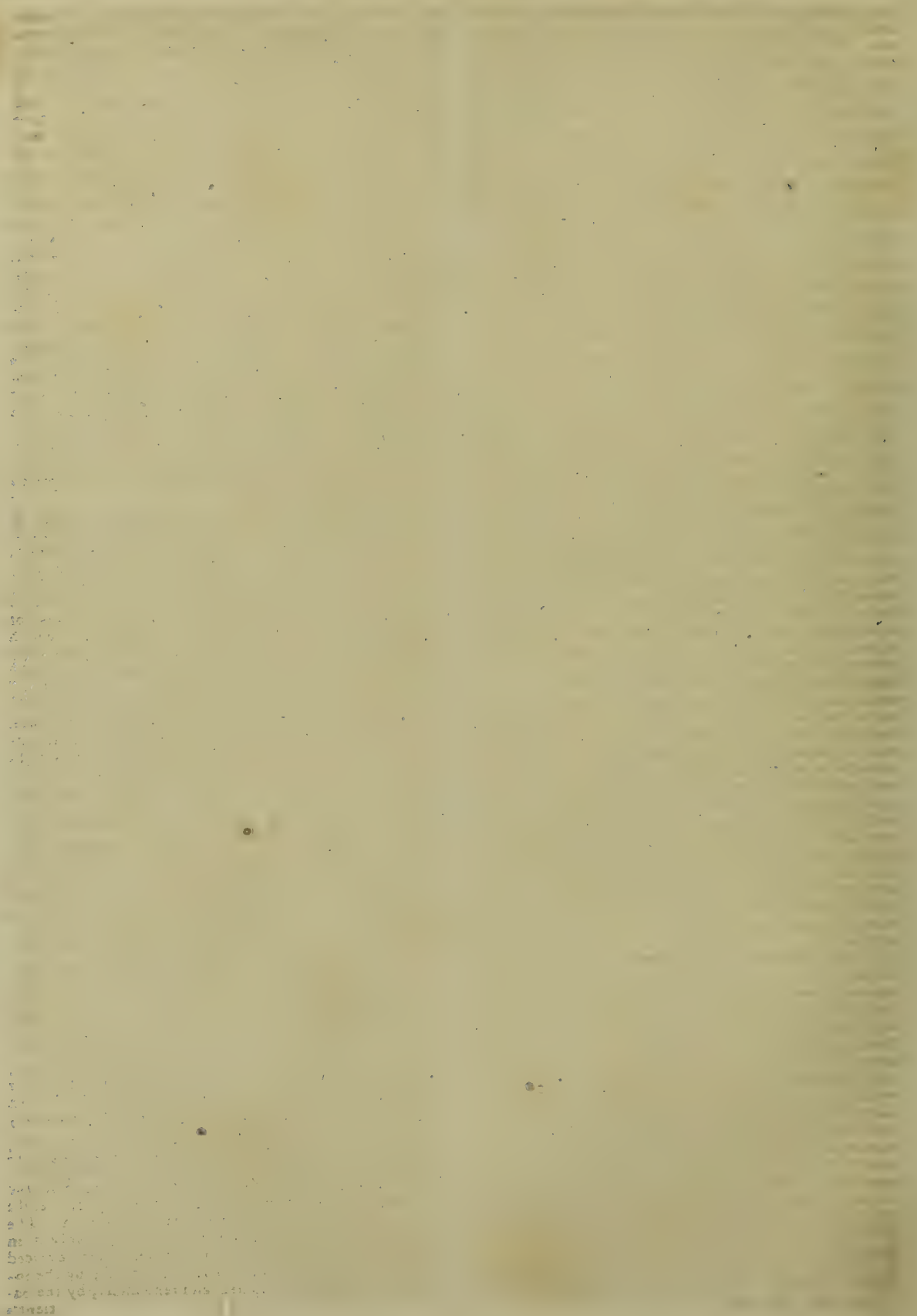
Cold applications to the head are often of much avail in the removal of the nervous symptoms of fever. Dr. Clutterbuck thinks "they are most serviceable where the pain and throbbing are the most violent, and the heat of body generally much increased." Where, on the contrary, the face is pale, and the extremities cold, as is often the case in feeble subjects, and in advanced stages of disease, the use of warm fomentations to the head from time to time seems more beneficial.

The last stage of fever is marked at once by great disorder in, and imperfect performance of, all the sensorial functions. The patient is nearly insensible to impressions; there is extreme prostration of strength, indicated by the supine posture, and the continual sliding of the body towards the bottom of the bed; together with involuntary tremors of the hands and tongue; and lastly, early delirium, followed by an almost total annihilation of the powers of mind. The pulse is commonly soft and compressible, though often with considerable fulness; and the heat of the body is generally considerable.

It is in this stage, that black fœces collect about the mouth and teeth; that the tongue turns black on its surface; and that petechiæ, purple spots, and vibices, with dark-coloured hæmorrhages, are apt to occur; succeeded by involuntary and foetid discharges by stool and urine. It is to fever marked by such symptoms, that the terms putrid and malignant were formerly and erroneously applied.

In former times, when persons labouring under fever





were confined in a close and heated atmosphere, and when cordials and stimulants, under the name of alexipharmics, were largely employed, such a train of symptoms was by no means uncommon. At present, owing to a more judicious management of the patient, they are rarely seen. The treatment of patients under these circumstances is difficult: little in fact can be done. It is to be remarked, that this state is never met with when proper antiphlogistic measures have been premised. The patient, after having undergone their operation, always terminates his life in another manner; viz. either from a general wearing-out and exhaustion of the nervous functions, or from local inflammation of a particular organ.

With respect to the period of this stage at which bleeding becomes inadmissible, this is very uncertain; for it has been often successfully performed even when the patient appeared near his death. Dr. Clutterbuck says that he has occasionally employed it with advantage at almost every period up to the end of three weeks. He believes it may be safely done at any time, as long as the sensorial functions are carried on in a tolerably perfect manner; "that is, while the external senses are preserved, the intellectual sound, the voluntary powers merely impaired, without being disordered." This author thinks that, contrary to what is generally supposed, "the more the sensorial functions are disturbed, particularly the greater the delirium, the less confidence can be placed in this evacuation." The pulse does not always indicate when it will be too late to bleed; for in numerous cases Dr. Clutterbuck has found it weak and small, when bleeding has proved of the most decided advantage. As a general rule, it may be stated, that, while a full and wiry pulse authorizes us to bleed in the most advanced stages of continued fever, a small and contracted state of it should be a veto to such practice. Hardness of pulse should also be particularly attended to. Dr. Clutterbuck thinks, when it is "soft and compressible, blood-letting is altogether inadmissible." In the advanced stage of fever, bleeding should be had recourse to with much caution and reserve, in regard to quantity; for the loss of two or three ounces will, at such time, be productive of very marked effects. He also thinks that this practice should not hinder the very moderate use of stimulants, as wine, ammonia, &c. Upon the whole, however, we should attempt very little of the latter kind of practice, and should content ourselves with the negative practice of abstracting all nervous irritants, as light, sound, &c. and open the bowels and excite the kidneys; always recollecting what Sydenham says, "*ob nimia diligentia medici.*" It is to be recollected, that we are not now speaking of those cases in which inflammation and disorganization takes place in a particular organ, this being the most frequent mode in which continued fever terminates.

A determination of blood to particular organs is a very frequent occurrence in epidemic fever. Sometimes these determinations happen very generally, from some peculiarity in the nature or the cause of the epidemic; as when we see inflammation of the lungs an almost constant companion of the prevailing fever; or where inflammation of the mucous membrane of the intestines, constituting dysentery, prevails. Occasionally, however, while simple fever is prevalent, the particular predispositions to disease which are present in the constitution are manifested by oppression of particular organs. As to the nature of these determinations of blood, we have no hesitation in ascribing them to inflammation. It should be mentioned, however, that this is denied by a physician, the excellence of whose descriptions and treatment of the above diseases forbids us to pass over his hypothesis, which we should otherwise consign to the oblivion it must soon meet with, and for which nothing but the practical merits of its author has procured even an ephemeral reputation. The hypothesis in question is that of

Dr. Armstrong, who considers that congestion of blood takes place in the veins of organs gravely affected in epidemic fever, and without any further disorder in the arterial system than simple excitation. Now nothing can be more baseless than the structure of this theory. It rests, first, upon the results of dissection; that is, upon finding actual congestion of blood in the veins. Now the veriest tyro that ever took up a scalpel knows that the last act of the arteries and the left ventricle is the propulsion of blood in the dead subject, so that the arterial system is always empty, the venous system full. And again, granting that an excitement of the small arteries existed, and caused distention and enlargement of the veins; the fact is practically unimportant, because our endeavours must be directed to the relief of the excited arteries, not to that of the veins, which are passive tubes. Venous congestion cannot, however, exist without derangement in the action of the heart; and if such derangement existed, congestions of the veins would exist generally; occurrences which certainly do not happen. Many other arguments suggest themselves against this wild speculation; but, as those we have adduced seem quite conclusive, we shall dismiss the subject. We must assert, however, that in no other work extant do we find so good a history, or such efficient treatment, of local inflammation supervening to fever, as in the work of Dr. Armstrong. From this gentleman's work, and from that of Dr. Jackson, we shall principally derive the symptoms of the following complaints.

We shall not enter into any discussion as to whether all fevers be of one kind; and the yellow fever, epidemic, dysentery, &c. the same disease, varying in intensity, and deriving the peculiar character of those forms of disease from the predispositions which climate and other external agents produce, though this seems a very probable view of the subject; but we shall confine ourselves for the present to an account of those complications which are met with in the epidemic fevers of this country. The most common complication is that of fever with inflammation in the lungs and its investments. In this case, in addition to the ordinary symptoms of fever, a permanent pain is felt in some part of the chest, generally acute, though occasionally obtuse; but, in either case, much increased by deep inspiration. There is a sense of weight or constriction across the breast. The respiration is always laborious; the thorax heaves, as if under some oppressive load; and the *alæ nasi* are thrown into strong motion. The patient is extremely restless, and has a frequent and troublesome cough, which augments both the pain in the side and the difficulty of respiration. Most frequently he cannot breathe with any degree of ease when incumbent, but is obliged to have the trunk considerably elevated. The features altogether indicate surmise, alarm, or anxiety; the eyes seem prominent; the cheeks and lips are generally of a deeper colour than natural, yet in some cases the face has a pale bloated appearance. The tongue is commonly foul in the middle, and of a dark red round the edges; the pulse is sometimes slow, full, and strong; and in other instances, quick, small, and weak. As in almost all local inflammations, the temperature of the skin varies a great deal in the day, and partial perspiration are not uncommon, especially when the pain of the side is acute. A milder form of inflammation attacks the pleura, which is often insidious and unsuspected. If the breathing be narrowly watched, it is observed to become quicker and more anxious, especially in the horizontal posture; and cough and uneasiness are almost always excited on a full inspiration. There is also, for the most part, pain or soreness in the left side, or under the sternum, with a feeling of weight or tightness in the breast, often with little pain. The progress of the inflammation is, however, involved in considerable obscurity: but it may, nevertheless, be traced by the continuance of uneasiness in the chest; by the increase of the cough, dyspnoea, and restlessness; by the patient's

tient's panting or breathing short whenever he speaks; by the number of respirations exceeding the natural amount in a given time; by the colour of the face, indicating some impediment to the common changes of the blood in the lungs; and by the gradual increase of the pulse, and of the fever. When the inflammation ends in an abscess, the uneasiness in the breast abates, but the breathing becomes more laborious, and there are chilly and hot fits, with copious sweats, and great loss of strength. The most common termination, however, of instances of this kind, is by an effusion of serum into the cavities of the pleura. This calamity is not necessarily fatal at once, some patients lingering for some time after it.

In this form of disease, the treatment of fever in general must be conjoined with the usual means for alleviating local inflammation. It is seldom an accurate diagnosis can be established between inflammation as it affects the substance of the lungs, or as it affects the pleura. In either case blistering may be considered a measure of great effect; and, if there seems strong evidence of the existence of inflammation in the pleura, we may have recourse more freely to the lancet than under ordinary circumstances. It is to be remembered that cold affusion is by no means to be allowed when the lungs are affected in fever. The warm bath is often, however, of great use when the temperature of the skin is unequal; and at the same time diaphoretics are of much importance. Of this kind of medicine, large doses of calomel, with as much opium as will counteract the purging property of the latter drug, are the most advantageous.

Another complication somewhat analogous to the preceding, is that of fever with bronchitis. The fever in this case is attended with a cough, at first dry, but afterwards moist. In recent cases the expectorated matter resembles the white of an egg, but in a more advanced stage it appears viscid and opaque. The pulse throughout is feeble and quick, the tongue foul, the heat variable, the bowels irregular, and the stomach prone to reject its contents; and, although the patient frequently appears drowsy, for the most part he obtains very little sleep. In some persons thus affected, the complaint continues many weeks, and often acquires a consumptive character before death. When it ends favourably, the convalescents remain long in an emaciated and enfeebled state. An abatement of the vomiting, some desire for light food, and a tendency to quiet sleep, are the appearances which augur recovery.

The treatment of this complaint must differ principally from that of simple fever in that a minor degree of bleeding will suffice, and in the exhibition of nauseating medicines, which are of very great use, notwithstanding the gastric irritability which prevails. In a word, the treatment is that of Catarrhus, (to which the reader is therefore referred for more explicit details,) conjoined with the more active and general treatment of fever.

Abdominal inflammation is frequently complicated with the fever in question; and it is often difficult to distinguish the precise situation of this occurrence; for the functions are so generally disordered, that their disturbance affords no diagnostic, as in cases of common inflammation. It is not, however, of the utmost importance to ascertain the precise seat of the inflammation, as the treatment does not vary essentially. The inflammation of the mucous membrane of the stomach which accompanies fever is so common in some countries abroad, that it has induced Broussais and others, as we have before seen, to infer its invariable presence in febrile diseases. In the works of the above author are to be found a variety of excellently-written cases of the complication in question. J. P. Franck (*De Curandis Hominum Morbis Epitome Prælectionibus Academicis dicata*, Ven. 1805.) more properly confines the term *gastric fever* to those cases in which the fever is accompanied and exacerbated, though not caused, by phlegm, bile, intestinal worms, or other irritating matter capable of inducing an

inflamed state of the stomach. We consequently generally meet with this disease in dyspeptic patients when they become the subjects of fever. We copy from a translation of Frank's work the symptoms of the gastric fever.

"It begins, like other fevers, with alternate cold, shivering, and heat, accompanied with lassitude, head-ache, and pains similar to rheumatism in the back, the loins, and the joints. The face becomes pale, and the eyes yellowish; but the stomach is chiefly affected with inflation, tension, and a sense of weight, joined with anorexia, loathing of food, nausea, retching, and eructation of disagreeable flatus, and of bilious, tenacious, acid, or acrid, matter. The state of the mouth is the best indication of the state of the stomach, which is observable in the fetid breath, the tongue loaded with tenacious white or yellow mucus, sometimes tasteless, and at others bitter and disagreeable. Disorders in the abdomen succeed, such as borborigmus, gripes, wandering pains, sense of weight and fulness, with either constipation, or bilious, fetid, or frothy, dejections. In this stage of the affection the patient may not be so ill as to be confined to bed; but in a short time, though the cold fit be neither great nor constant, and sometimes may be absent; the heat, thirst, giddiness, and head-ache, increase, the pulse becomes more frequent and often intermittent, the symptoms of the stomach, nausea and retching, and of the abdomen, are aggravated; the flushing of the face is greater, with greenish paleness towards the sides of the nose; the under lip quivers, the eyes are suffused with tears, the respiration becomes hurried and difficult, often accompanied with a cough, either with or without expectoration; pain similar to that of rheumatism is felt in the thorax, scapulæ, and fauces; there is often great apparent prostration of strength, with delirium, drowsiness, or vigilia.

"After three or more days, remissions occur in the morning, with a gentle sweat breaking on the forehead and breast. The tongue is sometimes more loaded with yellow mucus, and sometimes dry in the middle, and of a brown colour; the urine is made with ardent pain, is deeper yellow, or appears like that of cattle, or with a pink or furfuraceous sediment. Towards night, sometimes with a slight chilliness, or shivering, all these symptoms are aggravated; the skin becomes dry, harsh, and burning, and is sometimes suffused with a yellow tinge; blood often drops from the nostrils, mixed with yellowish serum; and the vigilia, restlessness, and delirium, are exceedingly distressing.

"As the disease advances, the morning remission almost disappears: the region of the liver and stomach is more tense and painful; the anxiety, heat, thirst, and head-ache, become much aggravated; the delirium is almost constant; the fauces are parched; the tongue, brown, livid, approaching to black, and covered with a viscid mucous, is almost of a fragile hardness and chopped; and the speech is impaired and stuttering. The eyes are very red, the hearing is obtuse, and the temples throb. The circulation is quickened, while the blood-vessels are contracted; the urine, scanty, thicker, fetid, and voided unconsciously; and the stools, liquid, brown, or greenish, and extremely fetid: the abdomen is inflated and sounds to the touch, and the skin is parched or bathed in a viscid sweat.

"If the fever in this stage is either neglected or badly treated, or the patient is otherwise in unfavourable circumstances, it will soon terminate fatally. On the other hand, if the force of the disease is subdued either spontaneously or by art, then the offending matters are thrown off by the bowels and skin, the remissions become longer and more distinct, the tongue more moist, and the mucus which covered it either sloughs off, or, as the tip of the tongue becomes redder, comes away from the edges in soft scales. Sometimes a very sudden change now takes place: the viscid matter almost of a ligneous hardness, which was adhering to the palate, quickly softens, and is bedewed with a bland moisture. At this period, the fe-

ver sometimes passes by almost imperceptible gradations into a periodic intermittent; or the exacerbation, becoming in its returns more tardy and mild, terminates in an equable and moist transpiration; the stools become copious, pultaceous, and natural; and the urine deposits a copious reddish-white precipitate.

"In the more mild and flow forms of the fever, the patient, on rising from sleep, feels little refreshed, is listless and morose, and his mouth and fauces are loaded with phlegm; he has fetid eructations, and copious mucous expectoration, with nausea; has little relish for food, but does not altogether loathe it, though after eating he complains of weight, fulness, drowsiness, flatulency, and obstruction of the bowels. He has a slow, weak, and sometimes a full and rather hard, pulse, with little thirst. Cold shivering is succeeded with wandering flushes, and dry squalid skin, or slight sweating; leaden heaviness of head, and murmuring and ringing in the ears, causing a degree of stupidity. The visciditv, in such cases, of the mucus in the stomach and intestines is often so great as to obstruct the orifice of the biliary duct, and give rise to jaundice. The abdomen swells, and feels painful to the touch in consequence of flatulency, and of the inertia of the bowels. Singultus and difficult deglutition succeed to great anxiety and oppression of the stomach; but in a few days numerous aphthæ are observed to spread from the fauces over the whole cavity of the mouth, which soon slough off, and are replaced with a fresh crop. Some patients are also distressed with difficulty of breathing and cough, which is first dry, and afterwards accompanied with abundant and viscid expectoration. In this state of things we can scarcely call the disease fever, unless there is greater prostration of strength, pains in the joints, increasing towards night, burning of the skin, or eruptions frequently breaking out immatvly; and more particularly if there are distinct evening exacerbations, succeeded by less distinct remissions, vertigo, vigilias, stupor, delirium, frequent syncope, with recurrent diarrhœa, rapidly undermining the powers of the system. In other cases, great quantities of worms, sometimes living and sometimes dead, or nearly putrid, are ejected both from the mouth and anus, accompanied with peculiar fœtor of the breath, and the usual symptoms of vermiform irritation; such as wandering pains, lancinating pains of the joints, itching of the nose, tremor, fainting, nausea, tenesmus, and copious dejections of putrid mucus.

"When the attack of the fever is more sudden, we generally, though not always, observe the cold shivering to extend beyond an hour, and to recur by turns, being followed by heat, which is for the most part parching, and increased towards night, often accompanied with furious delirium. In some cases a slight remission occurs in the morning; in others none. The pulse is weak and indistinct, collapsing after it has at first been full and somewhat hard. There is much nausea and bitterness of the mouth, and so great tumefaction and oppression of the stomach, that the very touch or weight of the bed-clothes is painful. Towards evening there is again an exacerbation, corresponding sometimes to semi-tertian intermittent; and the yellowness of the eyes, flushing, head-ache, vigilias, anxiety, fœtor of the breath, and delirium, are increased; and the thirst, and longing for acids, is sometimes intense, but occasionally is slight. The urine, at the access of the paroxysm, is brown, thick, turbid, and fœtid; during the remission, it is watery and crude. The stools are exceedingly offensive. Abundant but viscid perspiration gives no relief. The tongue is tremulous, and, with the teeth, is loaded with a brown viscid matter; or it is scabrous, almost black, very dry, and can scarcely be extended beyond the teeth. The stupor and vigilias increase; blood rushes copiously from the nostrils, or is passed with the urine and fæces; fluid, grumous, and preceded by pain extending to the pubis. Now large quantities of æruginous and viscid bile are ejected from the stomach, agreeing in this almost with

the yellow fever of America and Siam. The stools become more liquid, green, brown, frothy, and very offensive; and there is seldom power remaining either to void or to retain the natural discharges. The patient, notwithstanding, says he is very well, and attempts to go to his friends, whom he imagines are absent. He picks the bed-clothes, or mutters to himself; and sometimes bursts out into fits of furious delirium. This is succeeded by subsultus tendinum, comatose stupor, violent pulsation of the carotids, great difficulty of respiration, colliquative diarrhœa, cadaverous breath, hiccup, cold extremities; cold, profuse, and viscid, sweat; very rapid, and scarcely perceptible, intermittent pulse; lethargic sleep, convulsion, and death."

In our climate, though occasionally the gastric fever arrives at the same violence as above, upon the whole gastric irritation is more flow in its progress. It generally happens that the stomach and intestines suffer together, and that the inflammation implicates the whole structure of those parts, while in the accounts just rendered we often perceive a phlogosis of the mucous membrane only. In this case the complaint is generally attended with deep continued pain, and soreness of the integuments, increased on pressure; retching, vomiting, or anorexia, desire for cold acidulous drinks; short quick respiration, fulness as well as flatulence of the bowels, great prostration of strength, restlessness, and anxiety. The patient almost invariably lies upon his back, frequently tossing his arms about, moving his feet, or changing the position of his head. If desired to turn upon his side, it gives him considerable uneasiness in the abdomen; and, if suddenly raised into the upright posture, he generally begins to eruct, retch, or vomit.

The pulse is small and sharp, and in some cases very quick, but in others below an hundred in a minute; the tongue foul in the centre; the mouth clammy; the taste vitiated; the bowels are, for the most part, bound; the lips parched and pale, or somewhat livid; and the countenance expresses much distress. The pain of the belly is augmented by yawning, by coughing, or by drawing the breath deeply down, and sometimes even by the blandest liquids, which are usually rejected, unless taken in small quantities at once. If the pain be acute, the skin is often of a pungent heat about the breast and abdomen; while the forehead and face, exposed to the atmosphere, are sometimes damp and even cold.

During the advancement of the abdominal affection, the pulse grows smaller and quicker, the vomiting more urgent, the belly tumid; the thirst, sense of internal heat, and restlessness, being all aggravated. Upon the approach of suppuration, of effusion, or of gangrene, there are rigors or slight chilly fits, with much abatement of pain; but cold copious and clammy perspirations come on, attended with short agitated breathing, with an hurried undulating pulse, frequent dark lax stools, and incessant vomiting. Soon after this, the patient dies. For the most part, however, inflammation of the stomach or bowels terminates fatally before it has advanced into actual gangrene; the patient finally sinking under the accumulated force of exhaustion and of irritation.

It has been mentioned, that in most severe cases of gastric fever a great derangement of the functions of the liver is found. Sometimes, however, the latter circumstance exists alone. But we are not always to infer that morbid action of the liver exists because we meet with copious vomitings of bile; for the act of vomiting itself will induce copious discharge of bile from the healthiest individual. We again quote, chiefly from Armstrong, the history of the symptoms of this complication.

"If the liver be attacked with inflammation, giddiness, load about the breast, sickness, and vomiting, are often among the primary symptoms; and the patient, complaining of pain and soreness, with weight about the right hypochondrium, can neither bear pressure in that place,

place, nor lie upon the left side, without an increase of pain. When the convex surface of the liver is the seat of the inflammation, it is sometimes not very easy to distinguish the hepatic affection from pleuritis: but in the former uneasiness is excited by pressing the hand under and above the false ribs, and there is generally some pain at the top of the shoulder; circumstances not commonly observable in inflammation of the pleura: and further, the cough and dyspnoea are not so distressing as in the latter, while the abdominal secretions, especially those of the liver, are much more vitiated."

The cough is for the most part dry, but sometimes humid, and frequently excites a pungent pain in the part affected, with a tendency to nausea, retching, or vomiting. The spirits and strength, particularly the former, are much depressed; the mind is apprehensive, confused, or slightly delirious, the pulse quick and hard; or low, intermitting, or oppressed; the breathing anxious and variable; the tongue covered with a dirty white, or yellowish, more frequently with a brown fur; the urine scanty and deep-coloured; the bowels are generally irregular; and the fæces dark, slimy, varied, and mixed with morbid bile. The heat of the skin, though sometimes only a little, is at other times much, above the standard of health; it is sometimes jaundiced. Dr. Armstrong states, however, that this symptom often occurs without inflammation of the liver.

It is to be remarked, that there is often much obscurity in tracing the presence of gastric fever or inflammation in any part of the abdominal fever, when it assumes a slow and mild form. But the existence of this state in any part of the belly may be inferred in continued fever, when, after the supervention of the stage of excitement, the stomach remains uncommonly irritable; when there are constant feelings, however trifling, of weight or uneasiness about the scrobiculus cordis, when there is quickened or anxious respiration; a change always observable in abdominal, seldom in cerebral, irritations. We should also note the small and rapid pulse, the indistinct chills and heats, the dry or foul tongue, with thirst, restlessness, frequent eructations, sense of internal heat, soreness, or pain, in some particular part; and an unusual quantity of dark, thick, fluid matter in the stools on the operation of a purgative. The progress, indeed, of such affections must be traced by the above symptoms; for *pain* is not very conspicuous. But the best method of finding out obscure abdominal inflammation is to press forcibly on the bowels at a time when the patient's mind is occupied with some other object. It is proper to select this opportunity; for oftentimes patients complain of pain in reply to the question "Does pressure hurt you?" because they expect that such will be the case.

The most important feature in the treatment of the gastric complication of fever is its inertness. This is a fact not sufficiently dwelt upon in this country; and, though the too great dependance which our Gallic neighbours place upon medicated broths, eau sucrée, &c. may be worthy of censure when such remedies are applied to inflammatory complaints in general, yet, when the inflammation is confined to the mucous lining of the alimentary canal, the mere omission of irritating medicines, whether cathartics or stimulants, will do much for the cure of the disease. The nature of our treatment in abdominal inflammation will depend therefore upon whether the inflammation be confined to the above tube, or whether it more generally implicates the surrounding viscera. In the first case, free general bleeding seems by no means called for, though leeching the abdomen is highly necessary. As in this case a large quantity of irritating secretions have been collected, to the great aggravation of the gastric disturbance, it should be our first care to evacuate them from the system. In doing this, we should use such remedies as are most likely to bring about the desired effect without, by their own properties, irritating the inflamed membrane. In the first place, am-

ple dilution with acidulated drinks is to be had recourse to; an emetic is the next thing to be prescribed, and its effect is often miraculous; but, after the first time of giving it, its repetition seems by no means admissible. The evacuation of the bowels is to be effected by a dose of castor oil, if the stomach does not reject it, and by enemata: by the latter remedies, composed of oleaginous (or in cases of severe pain of anodyne) decoctions, the alvine discharge is to be regularly kept up. The medicines are to be such as at once diminish the temperature of the stomach; as, the common saline draughts, nitre largely diluted, &c. occasionally small doses of antimony may be used. No solid food or animal broths should be allowed; but cooling drinks may be taken in large quantities, together with sweet mucilaginous decoctions.

Now, if the collatitious viscera seems more deeply implicated, much will depend upon the state of the general fever. If the latter be highly manifested, if the temperature be high, and the pulse strong, bleeding and afterwards cupping over the affected part must be had recourse to without loss of time. If, on the other hand, a violent and intense inflammation supervenes, while the excitement of fever is not marked, (and this is no uncommon occurrence,) we should endeavour to excite those parts of the body which display a diminution in the quantity of their circulating fluids. To this end a hot bath must be premised before we bleed; and, in performing the latter operation, we should carefully watch the rising of the pulse; an occurrence so important, that we may occasionally endeavour to promote it by cordials and stimuli. After this, sinapisms to the feet, and other counter-irritants, will be found useful agents. It will be necessary also to excite the fecerent system generally by large doses of calomel and opium.

When inflammation of the liver is clearly manifested, or when the mucous membrane of the bowels is threatened with ulceration, in addition to the usual revulsive measures we should exhibit calomel in five-grain doses, combined with half a grain of opium, every six hours, till pyralism is induced. We may remark, that no general rules can be laid down as to the use of blisters: they are for the most part of the utmost efficacy in relieving the local complications attendant on continued fevers; but they require to be applied with much care, as to the state of the skin generally; for, when inflammation of the mucous membrane of the alimentary canal is attended with much heat and redness of the skin, it is generally found that blisters increase rather than alleviate the complaint: they also act in a detrimental manner in cases where excessive nervous irritability is present.

Besides the complications before mentioned, we sometimes find rheumatism or angina united with fever. Depletion may be pushed to the utmost extent in the former; in the latter, quite the reverse.

In taking leave of the treatment of continued fever, we have to say a few words on the management of *convalescents*. It is too much the practice even in this country, and it is carried to a much greater extent abroad, to give bark and other strengthening medicines, as they are improperly called, to those who have escaped from severe attacks of fever. We have no hesitation in strongly reprobating this practice. We should anxiously inculcate, that strength is only to be attained through the medium of healthy digestive organs; and that, when these are strong, a very small quantity of sustenance will produce a high degree of nutrition. Now, as sudden plethora is proverbially "a bad sign" when it supervenes to fevers, we should be cautious of producing it by exciting in an unnatural manner the energies of the digestive organs, and we should rather suffer them to recover their tone (which they will generally do) in a gradual manner, and by means of their own powers.

We now proceed to the consideration of **YELLOW FEVER**; a disease at the present moment committing dreadful

ful ravages on mankind, and concerning the origin of which the medical world is much divided. The conflicting opinions of medical men on this subject are indeed well known to the public; the grand question to decide being whether yellow fever is contagious or not. It is by no means easy however to trace the operation of the inscrutable agents which give rise to this disease: and hence, while one physician attributes its diffusion to exhalations from the body of the human species, another finds perhaps in the same case evidence of its origin from miasmata. In a late number of the Medical Repository we find the names of numerous and respectable authors marshalled in regular array against each other as taking opposite sides in this important question. We copy the chief of these, that those who want to examine closely the evidence on each side may have recourse to it.

Among those who consider yellow fever to be an imported and contagious disease, are ranked Arejula, Batt, Berthé, Dalmas, sir J. Fellowes, Moreau de Jonnés, B. Progetto, Salgado, &c. who found their opinions on the yellow fever of Spain; and more recently Pariset holds the same opinion. Also Bally, sir Gilbert Blane, Caizerques, Chisholm, W. Currie, Des Portes, D'Oyarvide, Lind, Ried, &c. who derive their facts from the West Indies and America.

Among those who deny that yellow fever is contagious, and assert its origin to be entirely local, or dependent upon some mysterious and inappreciable change in the atmosphere, are ranked Amiel, Burnett, Cassan, Doughty, Keutsch, Lacoste, Langerman, O'Hallaran, &c. who draw their observations chiefly from the fever of Spain; and Bancroft, Barker, Browne, Comstock, Clarke, Coventry, Davidge, Denmark, Devezze, Dickson, Ferguson, Gilbert, Hillary, J. Hunter, R. Jackson, Jefferson, M'Arthur, M'Lean, E. Millar, Moore, Mosely, Mufgrave, Muttlebury, Ramsay, A. Robertson, B. Rush, Savaré, Selden, Sheppard, Trotter, Valentin, Vanel, Veitch, Whitehead, &c. in the West Indies and America; and in Africa, Drs. Copland and Winterbottom.

Among those who hold a middle course, allowing the local origin of the fever, but asserting that it may become contagious, we find Eymann, Hofack, Humbolt, J. Johnson, Le Blond, Nicol, Palloni, Pugnet, Romans, &c.

To these we must add the singular opinions of Baron Larrey. This author divides virus into two kinds; the one fluid, as in syphilis, small-pox, and vaccina; the other gaseous, or miasmatic: of this last sort is (he says) the virus of the yellow fever. Each virus has a particular influence on certain parts. That of the yellow fever acts particularly on the nervous system of animal and organic life. It is connected with the lymphatic system; and, according to him, it is the most subtle and fugacious of all. It lasts but a moment at the highest point of disease; and then loses the power of transmitting itself. It is principally seated in the exanthema when this exists, and in the cutaneous transpiration. It is in this manner that M. Larrey endeavours to reconcile the contradictory opinion of physicians on this subject. He is, however, an advocate for measures of precaution; for if, says he, one patient only out of a hundred be capable of transmitting the disease, prudence requires that the whole should be sequestered, as it is impossible to ascertain the individual by whom the disease may be perpetuated.

For our own parts, we can only give the conclusions we have arrived at from an attentive perusal of most of the above works. It would far exceed our limits to detail, even in the most compressed form, the arguments of these numerous and conflicting authorities. But, taking up those opinions which seem to have been most carefully induced from facts, and which in some manner explain the dissimilar evidences of various authors, the following circumstances appear to us tolerably well established. First that the **YELLOW FEVER**, the *bilious remittent*, the *Bengal fever*, the *Bulam fever*, &c. are all one and the

same disease modified by varieties in climate, constitution, and predisposing causes; that is to say, that they are so far the same disease, that their fundamental therapeutical indications are similar, and that they are apt, when external circumstances serve, to run into each other. Secondly, that this fever is for the most part caused by certain miasmata from marshy soils, which miasmata are supposed to be the product of putrefying vegetable substances, it being urged that animal putrefaction is not found to produce yellow fever. This, however, is by no means clearly ascertained. It is asserted that the miasmata in question are generated for the most part in situations where the water has receded or been partially dried up, and where consequently the muddy bottom is exposed to the sun's rays. It is asserted also, that an high temperature is an indispensable condition to the production of these miasmata, or at least to their morbid action on the human body; whether such heat be in actual existence, or whether it has immediately preceded a sudden accession of cool weather.

Though these miasmata from marshy soils are undoubtedly in many instances the sole cause of the yellow fever, yet something must be often attributed to the influence of descending dews from the atmosphere. Indeed Dr. James Johnson mentions having himself experienced the sensible effect of this dew on-board of a ship; and it seems very probable that it was only by the preventive treatment he employed, that he warded off an attack of this fever. This author likewise informs us, that a fever which broke out in the Leopard's crew followed upon a descent of dew which took place every night, and was *perfectly salt and bitter to the taste*. The above-mentioned fact, according to Dr. J. Johnson, leads to a "practical inference of considerable utility; viz. that, when necessity compels us to penetrate through those infernal woods, jungles, or marshes, we should select that point of time at which we are least likely to meet those miasms, whether in their ascending or descending state. This period seems to extend from three to six o'clock in the afternoon; that is, after the greatest heat of the earth and air, and, consequently, the greatest evaporation; and before the condensation and return of such exhalations as rose during the day, and which combine with those still issuing from the heated soil for some time after sun-set. Independently of this circumstance, the body seems to be possessed of greater energy at this period of the day than at any other, it being that time when the principal meal is nearly digested, and consequently the animal vigour at its highest pitch. The depressing passions, intemperate or bad living, and the other predisposing causes of the fever of this country, act with equal or greater force in assisting the baneful operation of the miasms of yellow fever.

Thirdly, it is inferred as a probability, (for we have no evidence of our own to offer,) that yellow fever arising from miasmata may in some constitutions generate the volatile material which other fevers do, and produce contagion. Independently of the evidence derived from the authors before mentioned, the principles we have laid down when treating of contagion lead to the same conclusion. Indeed, when we consider the nature of contagion itself, we cannot refuse our assent to the proposition in question. We see that a fever, clearly traced in the first instance to local injury, will, under the concomitant circumstances of foul wards in an hospital, deficient ventilation, &c. engender contagious fever through large bodies of men; so that we infer that any fever, however induced, may be contagious, seeing that its local origin does not hinder the contagious effluvia from being produced. Moreover, let us consider the manner in which contagion is produced. It must be a *volatile secretion*; and this can only arise from the mucous membrane. Now, when we see the great variety of appearances which the visible products of this membrane exhibit when inflamed, can we doubt that in almost all

violent inflammations contagious effluvia may be secreted. In common states of the atmosphere, this is probably mixed, diffused, and decomposed; but in peculiar conditions of the air a suspension may take place, and thus contagious fever may be rendered general. Now that the morbid secretions of the mucous membrane are contagious effluvia, and that these are modified by nervous impressions in the same way as all secretions are, seems rendered still more probable by the circumstances, that in those fevers which are most contagious, viz. the exanthemata, a phlogosed state of the mucous membrane is uniformly present, and that an emetic exhibited early in those maladies often prevents the attack; a fact which we can only explain on the supposition that this remedy actually removes a deposited secretion, or, in other words, contagious effluvia from the surface of the stomach. In fact, there seems good evidence in support of the opinion, that all inflammation of, or disordered secretion in, the mucous membrane may elicit contagious effluvia. Thus dysentery, cholera, erysipelas, the influenza, (a species of catarrh,) have all been sometimes contagious, though it is well known that all these diseases occur without such an effect being produced. Nor, can we, on the same account, dismiss with the absolute denial which most authors have thought proper to do, the well-supported assertion, that croup and phthisis are occasionally catching.

To return to the yellow fever; it is to be remarked, that a consideration of the medical topography of the countries where this fever has appeared must disclose grand and important circumstances relative to the management of our fleets and armies. As this subject, however, embraces a wide field in a branch of medical science hitherto not cultivated systematically, we regret that our limits will not permit us to discuss it fully; but we can, with the utmost confidence, refer our readers to a work by Dr. James Johnson on Tropical Climates; which contains all that is at present known on the subject.

As to the nature of yellow fever, its immediate causes operate of course, as in other fevers, through the medium of the mucous membranes; and the irritation which is communicated to the brain and spinal marrow forms the grand connecting and essential link to the development of the general febrile phenomena. The action of the predisposing causes, as climate, fatigue, &c., is however to render the mucous membranes particularly liable to inflammation; while the same influence, by affecting the circulation of the surface, as was shown when treating of Cholera, throws unnatural quantities of blood into the portal system, and produces *congestion* there, this being the only part of the venous system where such a stagnation can take place. The effect of this is particularly felt in the liver, the stomach, and indeed the whole abdominal viscera.

The characteristic symptom of this fever, viz. the yellow colour of the skin, is variously accounted for by different authors. Dr. Bancroft supposes it is induced by the pressure to which the act of vomiting subjects the liver and gall-bladder. But to this it is replied, that there is no proportion between the intensity of colour and the severity of the vomiting; and moreover, that it often occurs before the vomiting takes place. Broussais is of opinion, that the yellow colour depends on violent irritation of the duodenum propagated to the secretory organ of the bile. The most plausible opinion, however, though it has been much ridiculed, seems to be, that the suspension of the action of the liver prevents the elimination from the blood of the bilious elements, and that these, existing in the blood from the want of secretion, and not from absorption, produce the phenomena in question. We have some reason to believe, that a morbid state of blood might cause the same appearance without the liver being materially implicated. This indeed, as far as regards certain yellow dingy patches

which occasionally appear on the skin in this fever, is allowed by Dr. Bancroft.

The *black vomit*, a most formidable symptom in yellow fever, was for a long time attributed to a superabundant and altered secretion of bile; but certainly without foundation, as is evident from the fact, that in a great number of dissections the liver has been found in a healthy state; and, where it has differed from its natural appearance, it has frequently been of a paler colour; the gall-bladder has also at the same time been found in a healthy state, containing its usual quantity of bile, not at all altered in its appearance or properties. Moreover, at a time when the stomach has been distended with black vomit, the passage from the duodenum into the stomach has been completely obstructed by the pylorus valve, so that no portion of the matter could have been derived from the hepatic system, in every part of which system the bile was quite natural in colour, taste, and consistence. The matter of black vomit, compared with bile, differs materially from it in all its physical qualities. It differs from it in colour; for, however dark the bile may appear in its most concentrated state, it always displays a yellowish or greenish-yellow tinge, when spread on a white surface, or when diluted; and this is never observed with the matter of black vomit. Indeed Dr. Bancroft has found that an addition of bile to the latter, altered its nature so much as to give it an appearance different from what it had before; nor could the black vomit be imitated by any mixture of various proportions of dark-coloured bile with the fluids found in the stomach. It differs most decidedly in taste; the black vomit being always insipid, when freed from other foreign matters; whereas the bile can never, by any means, be deprived of intense bitterness.

A natural conclusion therefore is, that the black vomit proceeds from the stomach itself, and is a consequence of inflammation of that viscus; whether this be a particular morbid secretion by the inflamed vessels or glands of the stomach; or, as Dr. Bancroft thinks, "merely blood which has been effused from some of the small arteries, ruptured in consequence of the separation of certain portions of the villous coat, and which has coagulated within the general cavity of the stomach, or on the surface over which it was effused; and, having been afterwards detached and triturated by the violent and frequent contractions of that organ in the efforts to vomit, has had its appearance as a coagulum of blood altered, and its colour darkened by the gastric juice, or by some chemical decomposition, either spontaneous, or produced by the action of the air, or other matters contained in the stomach."

It remains to give a description of the symptoms of this fever, which we believe will be found to agree accurately with the above short pathological sketch. The descriptions, not being drawn from our own observation, are selected from the most accredited authors, whose names we shall subjoin. The chief distinctions between the different forms this fever exhibits are drawn from its violence, or, what amounts to nearly the same, its continued, its remittent, or its intermittent, form.

The first description is that of Dr. Bancroft, derived from the contemplation of this fever in the western hemisphere. "The progress and violence of the yellow fever differ greatly, according to the force of its cause, the vigour and excitability of the patient, and the season of the year. When it prevails epidemically in hot climates, and attacks young and robust men, lately arrived from temperate regions, the disorder commonly appears in its most aggravated form. In this, the patient first complains of lassitude, restlessness, slight sensations of cold and nausea, which symptoms are soon succeeded by strong arterial action, intense heat, flushing of the face, redness of the eyes, great pain and throbbing in the head and in the eye-balls, uneasiness and pain in the stomach, oppression of the præcordia, a white fur on the tongue, and

and a dry parched skin, with a quick, full, tense, and generally strong, pulse, though it is sometimes oppressed and irregular. These symptoms are speedily accompanied by frequent efforts to vomit, especially after swallowing food or drink, with discharges, first of such matters as the stomach happens to contain, and afterwards of considerable quantities of bile, appearing first yellow and then green, sometimes tinged with blood, but in the progress of the disorder with matters of darker colours: an increase of pain, heat, and soreness of the præcordia, also occurs, with constant wakefulness, and frequently with delirium more or less violent. This paroxysm, or exacerbation, which has been called the inflammatory or the febrile stage, generally lasts thirty-six hours, but is sometimes protracted for seventy-two hours, and even longer, probably in consequence of either general or local inflammation, (particularly in the brain or stomach,) or of irregularity in the circulation, which are known to prolong the paroxysms in fevers of type.

"A remission then occurs, in which many of the symptoms subside, so as often to induce a belief that the fever is at an end, and recovery about to take place. Frequently, however the foundations of irreparable injury to the brain or stomach have already been laid in the former paroxysm; and in such cases the remission is short and imperfect. During these remissions, the pulse often returns apparently to the condition of health; the skin feels cool and moist, and the intellect, if previously disturbed, sometimes becomes clear; sometimes, however, the patient remains in a quiet and stupid state, a symptom generally denoting great danger. Another sign of danger, as denoting a very morbid condition of the stomach, is the renewal of the efforts to vomit, when pressure is made on that organ, or food is swallowed. After a certain interval, this remitting stage is succeeded by another, which may be called a second paroxysm, and which, probably, would appear as a renewed exacerbation, if the violent effects of the first had not almost exhausted the patient's excitability, and in conjunction with the extreme depression of strength which usually attends inflammation of the brain or stomach, rendered him nearly unsusceptible of those morbid actions which are necessary for that purpose. In this latter stage, then, instead of great febrile heat, and strong arterial action, the warmth of the body, and the frequency and strength of the pulse, are often less than when the patient was in health; but frequently the pain and heat in the stomach become excruciating, with incessant strainings to vomit, which, in most of the fatal cases, are followed by hiccough, and repeated discharges of matters resembling turbid coffee more or less diluted, or the grounds of coffee, and also by evacuations of similar dark matters from the bowels. Here it is to be observed, that, when these symptoms occur, (indicating a violent affection of the stomach and bowels,) the patient is, in general, sufficiently in possession of his intellects to know those about him, and to give distinct answers to questions made to him, although his excessive weakness often renders him incapable of mental exertion, and his inability even to raise his head may induce the appearance of coma. In those cases, however, in which the brain has suffered greater injury than the stomach, the retching and black vomit, just described, do not so commonly occur; but, instead of them, low muttering, or coma, with convulsions of the muscles of the face, and other parts of the body, supervene. About this time, also the tongue and teeth are covered with a dark-brown fur; yellowness of the skin and petechiæ make their appearance; the urine has a putrid smell and dark colour; the feces likewise become most offensively putrid; hæmorrhages sometimes take place from the nostrils, gums, and various other internal surfaces. There is in some patients, a suppression of urine; in others, an involuntary discharge of it, and of the feces: the pulse becomes feeble and intermits; the breathing is laborious;

portions of the skin assume a livid colour; the extremities grow cold; and life is gradually extinguished."

On the above description Dr. J. Johnson remarks, that the propriety of characterising the subsidence of great heat and vascular action at the close of the first stage as a remission, is very questionable. It is, in fact, (says he,) the transition from inordinate action to exhaustion—to that almost hopeless state which (the foundation of almost irreparable mischief having been already laid in the most important viscera) is speedily to terminate in disorganization and death, and has nothing in it of the salutary tendency of a remission. As Dr. Gillespie observes, "it is proper to caution young practitioners against a mistake very common with regard to the yellow, or ardent fever; that is, of taking the fatal stage which follows the cessation of ardent heat and great excitement, and which accompanies a sphacelus of the viscera, for a salutary crisis of the disease." *Diseases of Seamen*.—"Cette diminution des symptômes en impose quelquefois au malade, et même aux médecins inexpérimentés." *Dict. des Sciences Médicales*, tome xv. p. 336.

This declension of fever at the close of the first stage excited early attention, and is often so marked as to have been frequently mistaken for a proof of returning health. It is noticed by Dr. Hume, who had the charge of the naval hospital at Jamaica between the year 1739 and 1749, and was afterwards a commissioner of the Sick and Hurt Board, in the following terms: "The pulse is at first full, quick, and strong; but in forty-eight hours, after seizure, or thereabouts, it sometimes becomes calm and regular, scarcely to be distinguished from the pulse of a person in health." See Dr. Hume's Account of the Yellow Fever, published by Dr. Donald Munro.

Now, that we may more firmly establish the accuracy of the above description, as well as show the correctness of Dr. Johnson's remark, that the partial diminution of pain and uneasiness is not properly a remission, we subjoin the following account of the same fever as it occurs in another part of the west. It is detailed by Dr. McArthur. According to that author, this fever is usually ushered in by the sensations which precede other fevers; such as lassitude, stiffness, and pain of the back, loins, and extremities; generally accompanied by some degree of coldness. These are soon succeeded by a severe pain of the head; a sense of fullness of the eye-balls; intolerance of light; skin dry, and imparting a burning heat to the hand; pulse full and quick; tongue covered with a whitish mucus, but often not materially altered from the state of health; bowels bound. "I may here remark, that the actual degree of heat, as indicated by the thermometer, is not proportionate to the intensity communicated to the touch. It generally varied between 99° and 102°, very seldom exceeding 103°. yet the skin imparted a burning caustic sensation to the hand at these times. If the patient has been attacked in the night, he awakes with oppressive heat, head-ache, and the other symptoms of fever, the sensation of cold having passed unnoticed. At other times, after fatiguing exercise in the sun, and sometimes after a hearty meal, the violent head-ache, and other symptoms of the fever, are ushered in by an instant loss of muscular power, and immediate depression of nervous energy. The patient, as if he were stunned by a blow, falls down, his eyes swimming in tears. In those cases, delirium is an early symptom. In a few hours, the pain of the loins increases, and, in aggravated cases, stretches forward towards the umbilicus; the countenance is flushed; the white of the eye as if finely injected by blood vessels, the albuginea appearing through the interstices of the network of vessels, of a peculiar blue shining cartilaginous whiteness.

"During the first twelve hours, the patient is not particularly restless, enjoys some sleep, and, when covered by the bed-clothes, has partial perspirations on his face, neck, and breast. About the end of this period, there is a great

a great exacerbation of the fever; he becomes restless; the heat and dryness of the skin increase; there is much pain of the eyes and frontal sinuses; the pain of the thighs and legs is augmented; thirst is increased, with a sensation of pressure about the region of the stomach. Nausea and vomiting occur towards the end of the first twenty-four hours. If the fever has not been arrested within thirty-six hours from its commencement, the patient is in imminent danger, and all the symptoms are aggravated; the pulse is strong and full, and pulsation of the carotids appears distinct on each side of the neck. The skin continues hot and dry; the thirst is increased; there is much anxiety, the patient continually shifting his posture; the urine becomes high coloured; all his uneasiness is referred to his head and loins. A sensation of pain is felt about the umbilicus, when pressed upon; the white of the eye now appears of a dirty concentrated yellow colour, and apparently thickened, so as to form a ring round the margin of the cornea. The blood-vessels of the eye appear more enlarged and tortuous; knees drawn upwards to the abdomen; frequent vomiting, with much straining; mucus, and his common drink only, being ejected.

"Delirium comes on about the end of the second day. There is now a dryness, or slight sensation of soreness, of the throat when swallowing; and about this time an urgent sensation of hunger frequently comes on, and a remarkable want of power in the lower extremities, resembling partial paralysis of the limbs. About this time, also, the pain of the loins is so severe, that the patient expresses himself as if his back was broken. The third day, or stage, begins by apparent amelioration of all the bad symptoms, the vomiting and thirst excepted. The matter ejected has small membranaceous-looking flocculi floating in it, resembling the crust washed from a port-wine bottle. The thirst is now urgent, and there is an incessant demand for cold water, which is almost immediately rejected by the stomach. The heat of the skin is reduced; the pulse sinks to, or below, its natural standard; the patient, for an hour or two, expresses himself to be greatly relieved; and, at this time, a person unacquainted with the nature of the disease would have hopes of his recovery. This state, however, is of short duration, and the delusion soon vanishes. The delirium increases; the matter ejected from the stomach becomes black as coffee-grounds, and is somewhat viscid. Diarrhœa comes on; first green, then black, like the matter vomited. The patient often complains of being unable to pass his stools, from a want of power in the abdominal muscles. There is an acrid burning sensation of the stomach, and soreness of the throat, extending along the whole course of the œsophagus, in attempting to swallow; eyes, as if suffused with blood; skin a dirty yellow; parts round the neck, and places pressed upon in bed, of a livid colour. More or less hæmorrhage takes place from the nose, mouth, and anus; and a deposition of blood from the urine. The delirium becomes violent; the body as if it were writhed with pain, the knees incessantly drawn up to the belly. The patient seizes, with convulsive grasp, his cradle, or any thing within his reach, and prefers the hard floor to his bed. The pulse now sinks; respiration becomes laborious; the countenance collapsed; the lustre of the eye gone. For some hours, he lies in a state of insensibility before death; at other times, expires after some convulsive exertion, or ineffectual effort to vomit. The tongue is sometimes but little altered during the course of the fever; and, if loaded in the early stages, it often becomes clean and of a vivid red before death.

"Such is the regular succession of symptoms which characterize this fever, but of longer or shorter duration, according to the violence of the disease, or strength of the powers of life to resist it. In weakly habits, the vascular action at the beginning is less marked; and, in these cases, the fever is generally more protracted, and

the patient expires unaffected by the laborious respiration, and convulsive motions, which attend the last struggles of life in the more violent degrees of this endemic. Very often the patient retains his senses till within a few minutes of his death; and sometimes will predict, with considerable precision, the hour of his dissolution.

"In the early stages of the worst cases of this fever, there is much anxiety in the countenance of the patient, who expresses a despair of recovery; and *I have never noticed a remission during the whole course of the fever.* Several cases of remittent fever under my care terminated in the endemic fever.

"A certain number of those attacked by this fever, if prompt measures to subdue it had been employed, recovered from its first stage. They exhibited evident signs of amendment within the first twenty-four, or at farthest thirty-six, hours, from its first attack. Also, a considerable proportion recovered from the second stage; that is to say, previously to black vomiting unequivocally appearing. But I have only known thirteen cases, in above five years, to have recovered from the last stage. Some of these were afterwards invalided, in consequence of dyspeptic complaints, and generally-disordered state of the stomach and other abdominal viscera. In these cases, the stomach gradually became retentive; the eyes and skin became of a more vivid yellow; they had refreshing sleep, but continued extremely weak and languid for a long time. The oozing of blood from the fauces and gums also continued for some days; and the deposition of blood in the urine remained longest; this excretion being always the last to return to its natural healthy condition.

"Pain of the back, early stretching round to the navel; soreness in the throat and œsophagus; heat and acrid sensation in the stomach; urgent thirst; hunger; want of power, resembling paralysis of the limbs; violent delirium; despondency; enlargement of the blood vessels, and a red-yellow colour of the white of the eye, either singly or collectively, indicate extreme danger; and, when the black vomit has appeared, scarcely a hope remains."

The next form of yellow fever, is the *inflammatory endemic* which attacks new comers, (especially when they live intemperately,) on their arrival in the West Indies. The reader will see the precise similarity between this fever (which is allowed to arise from the united influence of plethoric constitution, intemperate habits, and changes in the temperature of the air) and yellow fever. Its symptoms are thus described by Nodes Dickinson: "In its severer aspect, and when neglected at the attack, this fever consists of two stages. In the first, there is increased excitement, resulting from an unusual stimulus applied in an excessive degree to a system peculiarly sensible to its impression: it produces a derangement in the functions of some or many viscera. If this goes on, the second stage appears, in which the structure of these viscera is altered to a degree incompatible with the living state. Thus the disease proceeds from high excitement to irreparable exhaustion, as we shall perceive by attending to the history of its symptoms. In the less severe example there is chilliness at the onset, soon followed by a permanent and universal sense of heat, flushed face, inflamed eyes, head-ache, increased susceptibility to the impressions of light and sound, vertigo, drowsiness, sighing, white tongue, arid fauces, thirst, wandering pains, loss of appetite, costiveness, high-coloured urine, dry skin, nausea, with full and frequent pulse;—should these symptoms in a severe degree remain without control, the disease is soon increased to its most aggravated form. The patient is extremely restless, with a continual desire to alter his position, but without relief. The heat and head-ache are intense; the carotids throb with unusual violence. There is sometimes a furious delirium; *tinnitus aurium*, and even loss of sight. There is, occasionally,

sionally, a dry cough with pain in the side, and almost invariably a sense of heat, oppression, and pain on pressure at the præcordia, accompanied by constant sighing. Vomiting sometimes comes on very early in the attack. There is often great drowsiness, but no refreshing sleep. In some cases an acute pain is felt in the right side; and a yellow colour of the skin often supervenes. This yellowness is occasioned by the presence of bile, which is also detected in the urine and serum discharged from the blisters. Should the passage of bile into the intestines spontaneously take place, or be procured by the action of purgatives, this jaundiced appearance will generally be prevented: nevertheless, in some cases it may possibly arise from a redundant secretion, even when the bilious canals are free; and a bilious vomiting and purging may occur with the yellowness of the skin, and carry off the attack. These symptoms proceed with various degrees of violence, and they occupy an uncertain period. Within twelve, twenty-four, or thirty-six, hours, or perhaps after a longer but indefinite time, an important change takes place. It marks the commencement of the second stage. Many of the most urgent symptoms decline. The pain and heat of surface subside. There is a sense of cold with dampness of the skin. This change at first so much assumes the appearance of febrile remission as to give great hope to the inexperienced practitioner; but it speaks a state of the utmost danger. In some cases the patient sinks, at once, after the subsidence of excitement, apparently destroyed by the general affection, without any previously-severe determination of blood to particular organs; and he dies at the moment of hope in his amendment. But, more commonly, the catastrophe is not so sudden. With the diminution of heat and pain, the pulse falls; the countenance exhibits great distress; the eye is sunk; the pupil dilated; sometimes delirium continues; at others, there is great insensibility with tendency to coma. Vomiting, occasionally, continues without intermission: at times, however, the stomach remains tranquil; and this, when there is much cerebral disturbance.

"As the disease advances, a discolouration of the skin often takes place. It appears in yellow, brown, and livid, patches. This discolouration never comes on until the subsidence of the symptoms of excitement, however early in point of time. It occurs within the passive hæmorrhage from various parts: from the nose, corners of the eyes, ears, &c. and at the same time with the black vomiting. This change of colour appears to arise from ecchymosis proceeding from exhaustion of the *vis vitæ* in the capillary vessels of the surface in consequence of previous inordinate excitement. It is very dissimilar from the bilious yellowness already noticed as an incidental symptom of the first stage of the disease.

"The first discharges from the stomach are merely the ingesta; afterwards a large quantity of serous fluid is ejected, when little has been drunk. In a more advanced stage of the complaint, the material thrown up is ropy, and mixed with numerous small shreds, flocculi, or membranaceous films, which float in the ejected liquid. These soon acquire a dark-brown, purple, or black, colour; but do not, at first, communicate much general tint to the fluid in which they are suspended. Afterwards, the matters vomited are more intimately mixed together; and, with the addition of dark-coloured blood which is effused into the stomach, vitiated bile, and other morbid secretions, give an appearance in the aggregate of coffee-grounds. There is at this period, usually, a purging of dark-coloured matter resembling tar mixed with black blood.

"Sometimes within the first forty hours, at others after a more protracted period, the scene draws towards a close with the ordinary phenomena of approaching dissolution which accompany the last stages of acute disease in general. There are dilated pupil, strabismus, singultus, subultus tendinum, coma, deliquium, hæmorrhage

from various channels, suppression of urine, low muttering delirium, total insensibility, occasionally violent raving, and an incessant disposition to rise in bed. These are among the last symptoms of an un subdued attack; and they mark the near approach of death."

To establish our assertion of the identity of the various forms of yellow fever, we shall now give a description of this fever as it occurs in the east and other parts. In many parts of the east, the comforts and habits of the people are far from proving such powerful predisposing causes of yellow fever as in the west; but, as this is by no means general, we often meet with the precise symptoms of continued fever, as exemplified in the following excellent description of the endemic of Batavia, drawn up by Wade Shields. "The patient, without much previous notice (of the first attack), is suddenly seized with giddiness and cold chills, a sense of debility, and vomiting, with pain over the orbits, and in the epigastric region. He frequently falls down, and is insensible during the paroxysm; his body covered with cold clammy sweats, *except at the pit of the stomach, which always feels hot to the palm of the hand*; the pulse is small and quick. On recovering a little, this train of symptoms is succeeded by flushings of heat, increased pain over the orbits and in the scapula, pain and a sense of internal heat about the stomach and præcordia, oppressed breathing; the lower extremities, at this time, not unfrequently covered with cold sweats. The eyes now become, as it were, protruded, and the countenance flushed. Retching, and, at length, vomiting of discoloured bilious matter, comes on; the tongue white and furred, the abdomen tense and full, with pain in the loins and lower extremities. The length of this paroxysm varied from six to eighteen hours, and was generally succeeded by cold rigors; very often low delirium, preparatory to the next stage or paroxysm of the fever. The intellectual functions now become much impaired, the patient not being at all sensible of his situation, or of any particular ailment. If asked, how he is? he commonly answers, "Very well;" and seems surprised at the question. This was a very dangerous symptom, few recovering in whom it appeared. In this stage all the symptoms become gradually, often rapidly, aggravated; particularly, the head-ache, pain and tension in the epigastric region, and vomiting. Some patients, on shore, were carried off in eighteen, twenty-four, thirty, or forty, hours, and others not till as many days after the attack, especially when removed on-board, from the more noxious air of the island. A great proportion changed, in a few days, to a bright yellow; some to a leaden colour: other cases terminated fatally, in a very rapid manner too, without the slightest alteration in that respect. Generally, however, the change of colour indicated great danger. Vomiting of black bilious stuff, resembling the grounds of coffee, frequently commenced early, and continued a most distressing symptom; too often baffling all our attempts to relieve it. In some, a purging of vitiated bile, or matter resembling that which was vomited, occurred; in a great many, a torpor prevailed throughout the intestinal canal; rarely did any natural feces appear spontaneously. The pupil of the eye was often dilated, and would not contract on exposure to a strong light; in others there was great intolerance of light: both indicated danger. Low delirium was a pretty constant attendant on this fever, from first to last; sometimes, though more rarely, raging-high delirium. The latter case is attended with red, inflamed, and protruded, eyes; great inquietude, hot dry skin, and small quick pulse. The patient's mind is actively employed about his usual occupations. During the violence of the paroxysms, he is quite insensible to every thing that goes on around him, constantly grasping at, or wrenching, objects within his reach. In the low delirium, also, the mind is much occupied on avocational subjects: if a seaman, about the ship's duty; if a soldier, about his regiment, marching, &c. Some patients were comatose

from the first attack; in others, the fever was ushered in with convulsions, delirium, and cold sweats, without any intervening heat of the surface, except at the pit of the stomach, which, in most cases, was burning-hot to the touch, and accompanied internally by a similar sensation according to the patient's own feelings.

"Hæmorrhage from the mouth or nose seldom occurred; in two cases, which terminated fatally, the blood did not coagulate, but tinged the linen yellow. Aphthæ appeared in a few cases, and indicated danger. Subfultus tendinum often attended both on the low and high delirium! The pulse never could be depended on. In the very last stage it has been regular; but in general it is small, quick, and either hard or stringy and tremulous; sometimes, during the reaction of the system, full and hard. Deafness was very common, and an unfavourable symptom. Two kinds of eruption appeared about the lips: one such as we often see at the decline of common fevers; the other, consisted of small black or brown spots round the lips, and was likewise a dangerous, indeed a fatal, symptom. With this eruption, the teeth, tongue, and fauces, generally become covered with a brown or black crust, and the breath intolerably fetid. Locked jaw took place in two cases at Onrust-hospital, but the patients were insensible of it: both died. The brain appeared the organ chiefly affected at first—the stomach and liver in succession. In those cases which occurred on-board, and where the patient had not slept on-shore at Edam, the symptoms were much milder, and the fever resembled more the bilious remittent of other parts of the East. A great torpor prevails generally throughout the system, with the low delirium; blisters, medicines, &c. having little effect on the patient, who appears as if intoxicated. When roused, he recollects the person who is speaking to him, for a moment, and answers in a hurried incoherent manner: then lies on his back, his mouth and eyes half open; both feces and urine often passing involuntarily. I have seen patients remain in this state for hours, nay, for days together, scarcely moving a single voluntary muscle all that time. Never was there a disease so deceitful as this fever: I have frequently seen instances where every symptom was so favourable, that I could almost have pronounced my patient out of danger: when all at once he would be seized with restlessness, black vomiting, delirium, and convulsions, which, in a few hours, would hurry him out of existence! The fatal terminations generally happened on the third, fifth, seventh, ninth, and not unfrequently the eleventh and thirteenth, day; if they passed this period, they usually lingered out twenty or thirty days. But very few indeed ever ultimately recovered, who had slept on-shore, and were attacked at that dreadful island, Edam! No constitution was exempted from the assault of this fever. It seized with equal or nearly equal violence on those who had been many years in India, and on the most robust and plethoric, or newly-arrived, European. Even the Dutch officers and Malays, who had been drawn from different parts of Java, and whom we had prisoners at Edam, fell victims as fast, or nearly so, as the English. Several officers, seamen, and soldiers, were sent on-board from this island, in hopes that the change of air might mitigate the disease. Many of even the worst cases of these would promise fair for a few hours in the forenoon; but night always dispelled our hopes, for then the patient relapsed as bad as ever: they almost all died. But their fate was considerably protracted by the change; many of them lingering out a great length of time on-board, sinking at last from the consequences of the fever, rather than from the fever itself. Several of them changed into obstinate intermittents at sea, with great derangement of the liver, spleen, and bowels. Indeed the *liver*, in most cases, seemed affected from first to last in this fever; but, in all protracted states of it, this affection became the prominent symptom. In those that were cut off during the first eighteen, twen-

ty-four, or thirty, hours, the *brain* appeared to be the organ oppressed."

The remittent form of yellow fever is that most frequently met with in the East. We shall accordingly proceed to describe the marsh remittent, or endemic fever of Bengal, in the words of Dr. Clark. "This fever attacked in various ways, but commonly began with rigors, pain and sickness at stomach; vomiting, head-ache, oppression on the præcordia, and great dejection of spirits. Sometimes, without any previous indisposition, the patients fell down in a deliquium, during the continuance of which the countenance was very pale and gloomy; as they began to recover from the fit, they expressed the pain they suffered by applying their hands to the stomach and head;" so great indeed, that delirium often came on at once; but, "after vomiting a considerable quantity of bile, they soon returned to their senses. Sometimes the attack was so sudden and attended with such excruciating pain in the stomach, that I have been obliged to give an opiate immediately.

"In whatever form the disease appeared at first, the pulse was small, feeble, and quick: the pain at the stomach increased, and the vomiting continued. As the paroxysm advanced, the countenance became flushed, the pulse quick and full, the eyes red, tongue furred, thirst intense, head-ache violent; delirium succeeded; and the patient became unmanageable; but a profuse sweat breaking out in twelve or fourteen hours, generally mitigated all the symptoms. In the remissions, the pulse, which before was frequently 130, fell to 90. The patient returned to his senses, but complained of great debility, sickness at stomach, and bitter taste in the mouth. This interval, which was very short, was succeeded by another paroxysm, in which all the former symptoms were aggravated, particularly the thirst, delirium, pain at the stomach, and vomiting of bile. If the disease was neglected in the beginning, the remissions totally disappeared, and the skin now became moist and clammy; the pulse was small and irregular, the tongue black and cruited, and the pain at the stomach and vomiting of bile became more violent." It is needless to say, that from this period till death closed the scene, the features of this fever were such as characterise the last moments of all violent and fatal fevers.

The unfavourable terminations are generally between the third and seventh day, though in some cases the fever goes on to the fifteenth or twentieth day: but visceral obstructions are almost always the consequence; and hepatitis and dysentery complete what the fever fails to accomplish. Dr. Johnson adds, that several cases occurred under his inspection where there was a yellowish suffusion on the skin, as in the endemic of the West, with vomiting of matter bearing a considerable similarity to the grounds of coffee. This however is by no means an uncommon symptom in the fevers of the East.

Occasionally, in the advanced season of the year, or when cold weather sets in, this fever assumes an *intermittent* form. The similarity in the nature of the two forms of disease is well supported by a Report drawn up by Drs. Ainslie, Smith, and Christie, on the epidemic fever of Coimbatore. The Report states, that it was either remittent or intermittent, according to the constitution, treatment, and season of the year. People by nature delicate and irritable, or rendered so by irregularities or want of care, were sometimes attacked by the disease in the remittent form, proving bilious or nervous, as the constitution inclined. "The same happens to the more robust, when improperly treated, as where bark is given early and before proper evacuations have been premised. As the season becomes hotter too, the remittent form prevails over the intermittent. Males suffered more than females, and young people and those of middle-age more than old people and children. The remittent form sometimes makes its approach very insidiously. The patient feels himself out of sorts for a few days; his appetite

appetite fails him; he has squeamishness, especially at the sight of animal food; universal lassitude; alternate heats and chills; stupid heaviness, if not pain in the head. The eyes are clouded; the ears ring; the bowels are invariably costive. In other cases, the enemy approaches rapidly; and rigors, great prostration of strength, vertigo, nausea, or vomiting, usher in the disease.

"The first paroxysm, which is often attended with delirium and epistaxis, after continuing an indefinite period with varying symptoms, terminates in a sweat; not profuse and fluent, as after a regular hot fit of ague, but clammy and partial, with the effect, however, of lowering the pulse and cooling the body, but not to the natural standard. The latter still feels dry and uncomfortable; the pulse continuing smaller and quicker than it ought. This remission will not be of long standing, without proper remedial measures. A more severe paroxysm soon ensues, ushered in by vomiting (sometimes of bile), and quickly followed by excessive heat; delirium; great thirst; difficult respiration; febrile anxiety; parched and brownish tongue. The next remission (if it do take place) is less perfect than the first, and brings still less relief. In this way, if medicine or a spontaneous purging do not check the disease, it will run its fatal course, each succeeding attack proving worse than its predecessor, till exhausted nature begins to give way. The pulse declines; the countenance shrinks, and looks fallow; the eyes become dim, the abdomen swells from visceral congestion; the stomach loathes all food, when hiccup, stupor, and low delirium, usher in death. Such severe cases, the committee think, were, in general, owing to neglect or blunders at the beginning of the disease."

Between the *bilious fever* and the continued form of the western endemic we observe little difference. In each, gastric irritability, inflammation or fullness of the abdominal viscera, oppression of the head, are for the most part present. The other febrile symptoms are by no means constant and regular. Thus the pulse is frequently regular, and sometimes up to 120 or 130 in the minute. It is the same with the temperature of the skin. Often, when mad delirium is present, the pulse will be 86, and the thermometer in the axilla at 96° of Fahrenheit. The bowels are almost always constipated, or in a state of dysenteric irritation. No such thing as natural stools in this fever are ever to be seen, unless procured by art. Frequently, but not always, yellowness of the eyes, and even of the skin, takes place; and the mental functions are very generally affected, which indeed is characteristic of all bilious diseases.

The following is the most general order in which the febrile phenomena present themselves. Severe pain in the head, arms, loins, and lower extremities; stricture across the breast, with great pain under the scrobiculus cordis; retching and griping. In some cases the pulse intermits, and the temperature of the skin is increased; in others, cold chills come on, attended with partial clammy sweats; but all patients complain of *pain under the frontal bone*; most have white furred tongues, and thirst. An increase rapidly takes place in the severity of the pain in the head, limbs, loins, and across the epigastric region; constant vomiting of viscid bile comes on; intermission of pulse goes off. In some, the skin is cold; in others hot, with insatiable thirst. Tongue, in most cases, covered with a thick white crust. Great irritability of the stomach, and aversion to food. Bowels constipated; but a few patients have a foetid bilious purging. The third or fourth days bring an increase of pains across the epigastric region, and in the head, with frequent vomiting of bile; tongue swelled and furred, but no great heat or acceleration of pulse. An increase of all these symptoms, especially the violent pain in the head under the frontal bone, takes place; delirium, and yellowness of the skin, come on; and the fatal progress of the disease is precisely similar to that of the continued

fever before detailed. Throughout the whole of the disease, the *liver* appears to be severely affected.

The disease does not always proceed, however, in the manner here mentioned. Sometimes violent madness is the first decided symptom: the patient endeavours to commit suicide, and has been known to attack with fury those who have endeavoured to prevent his throwing himself over-board, or committing similar acts of violence. The patient often falls suddenly down, with suffused eyes and insensible limbs; and awakes after some time to undergo the most violent inflammation of the brain.

The appearances found on *disection* those to whom yellow fever has proved fatal, are such as commonly follow inflammatory action; and, according as this action has been violent or otherwise, we observe the various gradations of mortification or sloughing, of abscess or ulceration, of adhesion or effusion, or (rarely) of simple redness and dilatation of vessels.

The parts principally affected are, the brain, the membranes of which are often found adhering together, and the ventricles containing watery or bloody fluids; the liver, the structure of which is variously affected, from a slight hardness and darkened colour of its edge, to a state so completely dissolved and broken down, that with the slightest pressure the finger runs into it. The gall-bladder is almost always turgid with bile; the stomach and smaller intestines inflamed in various degrees, the stomach being frequently ulcerated or sphacelated, and the intestines exhibiting various diseased products: it rarely happens that the inflammation extends to the colon. The thoracic viscera are not generally much affected, though occasionally polypi are found forming in the heart, or the pericardium is unusually distended. But ulceration or abscess of the lungs is perhaps the least frequent organic lesion of the viscera. The skin is often affected with inflammatory action, as exemplified by its frequent termination in spots and ecchymoses. It is to be remarked, that sometimes the abdominal viscera are very much diseased, while the brain is tolerably sound: but much variety exists as to the organs affected.

We pass over numerous histories of the forms of yellow fever. We have stated what appear to us the principal divisions. To attempt to detail the perpetually-changing varieties in febrile disease is equally beyond our limits or our power; for a history, so far complete, that it embraces all the forms of yellow fever that have hitherto appeared, we again refer our readers to the work of Dr. J. Johnson, before quoted, and to which we have been much indebted in our compilation of the history of this disease.

The course of few maladies so strongly exemplifies the danger of following with unvarying measures diseases similarly named as that of the yellow fever. The treatment of this disease must change according to the prevalence of particular symptoms, according to the mode of attack, and according to the effects it produces. It cannot uniformly be grounded on the division of stages, so useful in most ailments; for we have before seen, that it sets in in various and opposite ways; being sometimes attended with coldness and diminution of all the phenomena of life; sometimes, on the contrary, with raving delirium, and great exaltation of strength, heat, &c. It cannot altogether be founded on the exciting cause; for the intenser and the milder forms equally arise from the action of the same agent, if the constitution be different; nor can an observance of the constitution of the patient always lead us to discrimination, since the weakest patients have borne depletory measures under which the robust have sunk, and of course vice versa.

The first accession of the fever being the period at which alone remedial agents can be depended on, it behoves us to meet it with the utmost promptitude and decision. If the cold stage be first manifested, we should lose no time in putting in force those measures of bleed-

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ing on the one hand, and restoring the balance of circulation on the other, as detailed in the quotation from Dr. Jackson in our 20th page. If the raving delirium and increased circulation be first manifest, our bleeding must be still more free; and here let us caution our professional brethren against those futile half-measures which systematic writers in this country have been accustomed to recommend. We repeat the opinion of the best-informed practical writers on Indian maladies, when we quote Dr. J. Johnson's expression "Bleed boldly and decisively till the head and præcordia are relieved, or draw no blood whatever." Indeed it is effect we must look to. The pulse is so changeable, that it is a bad guide; and, as to quantity, this is so various in different persons of the same appearance, that the measurement of ounces is still more fallacious. Ninety ounces of blood have been drawn during the early stage of this fever; and not until that quantity was extracted did the symptoms abate. This measure frequently relieves not only the head and abdominal congestion and inflammation, but also the distressing and perpetual vomiting. In prosecuting it we must let nothing deter us from our purpose. Should mental impression cause faintness, the patient is to be supported with a little wine and water; the bleeding restrained; and, as soon as animation is restored, we must again open the vein. When the head is violently affected, cold lotions are to be applied to it; and, if there is general and high excitement, water should be dashed over the whole body. Against emetics strong testimony exists; and indeed, when the great irritability of the stomach is considered, we should naturally suppose such remedies must do harm. The only case in which an emetic seems at all allowable, is when a full meal of solid food has been taken soon after the accession of the fever, and the stomach has not rejected it. Here it appears highly probable that the undigested aliment must excite more serious inflammation than the transient stimulus of the emetic.

Purgatives in a condensed form, as calomel with rhubarb and jalap, may be next exhibited; and these should be assisted in their operation by oleaginous or saline enemata. When the irritability of the stomach is so great that we fear the rejection of purgatives, a scruple dose of calomel combined with a grain of opium, is said to reduce the disposition to vomit in a rapid and astonishing manner; after which the purgatives may again be persevered in. When the bowels have been freely evacuated by purges, we must have recourse to calomel, a remedy which writers on this fever have floridly called their "sheet-anchor." This medicine, exhibited in large doses and combined with opium, has been found to be a remedy of universal application. Many have trusted to it alone; but though with these practitioners some patients were cured, and the lives of others considerably prolonged, yet the rate of mortality which occurred during the exclusive use of mercury so far exceeded that which attended the practice of conjoining its exhibition with bleeding, that the latter practice is now resorted to in all violent cases. This fact may be explained on the ground that abortion does not readily take place when the blood-vessels are full, or on the ground that the generally-increased momentum of blood keeps up inflammation in the capillary system of the diseased viscera, notwithstanding the favourable action of mercury on the secretants. At all events, it is almost impossible to impregnate the system with mercury till ample depletion has been used. Of the mode of action of mercury we have before regretted our ignorance, when speaking of cholera and dysentery. In the fever in question, it seems to be chiefly effective by establishing general secretion; and we find that, when this happy occurrence has taken place, (which is denoted by pyralism coming on,) then, and not till then, is the patient in a fair way of recovering. If the stomach rejects the calomel, mercurial inunction may be substituted.

The above-urged measures of course require some modification. If the head be more exclusively affected, and the liver in a trifling degree only, we need not always push the mercury to the extent of pyralism; but we should carry the bleeding to the highest pitch, and particularly attend to the cold affusion. When the disease assumes the mild remittent or intermittent form, the paroxysm may be conducted by the same means as before mentioned. During the intermission, calomel may be conjoined with bark, and the latter injected per ano; but, ever keeping in mind to restore the action of those parts which are deficient, and diminish those motions which are excessive, we should endeavour by blisters, by baths, and by local bleeding, to relieve topical inflammation, and restore the balance of power of which all the phenomena of this fever indicate a severe derangement. It is scarcely necessary to add, that it is of importance to avoid the exciting causes of the complaint, since these invariably aggravate it. Thus the removal of soldiers into barracks at a distance from pestilential effluvia, of sailors from on-board of foul or crowded vessels, &c. should, when practicable, be strongly urged. It is to be remarked, that some have supposed the yellow fever to be a disease which cannot occur twice in the same individual; but this is contradicted by the best authorities.

We must now return to our nosological arrangement, which, for the obvious reason that it entirely disagrees with the opinions we have adopted as to the identity of several fevers distinctly named, we have thus far abandoned. Dr. Good gives in the present order of Pyrexia four genera.

Genus I. *Ephemera*, [from the Gr. *ἡμέρα*, a day.] Ephemeral, diary, or simple, fever. Generic characters—Attack sudden; paroxysm single, and terminating in about twenty-four hours. There are three species.

1. *Ephemera mitis*, or mild *ephemera*: without preceding rigor; heat and number of the pulse increased slightly; lassitude and debility inconsiderable; pains obtuse, chiefly about the head; perspiration and breathing pleasant. This species is usually produced by excess of corporeal exertion, study, or violent passion; by suppressed perspiration; sudden heat or cold.

2. *Ephemera acuta*, or acute *ephemera*: severe rigor; great heat; pulse at first small and contracted, afterwards quick and strong; perspiration copious; great languor. It is frequently produced by a surfeit of eating or drinking; or some temporary organic obstruction. These two species of *Ephemera* generally go off spontaneously; or, at most, by the help of rest and abstinence.

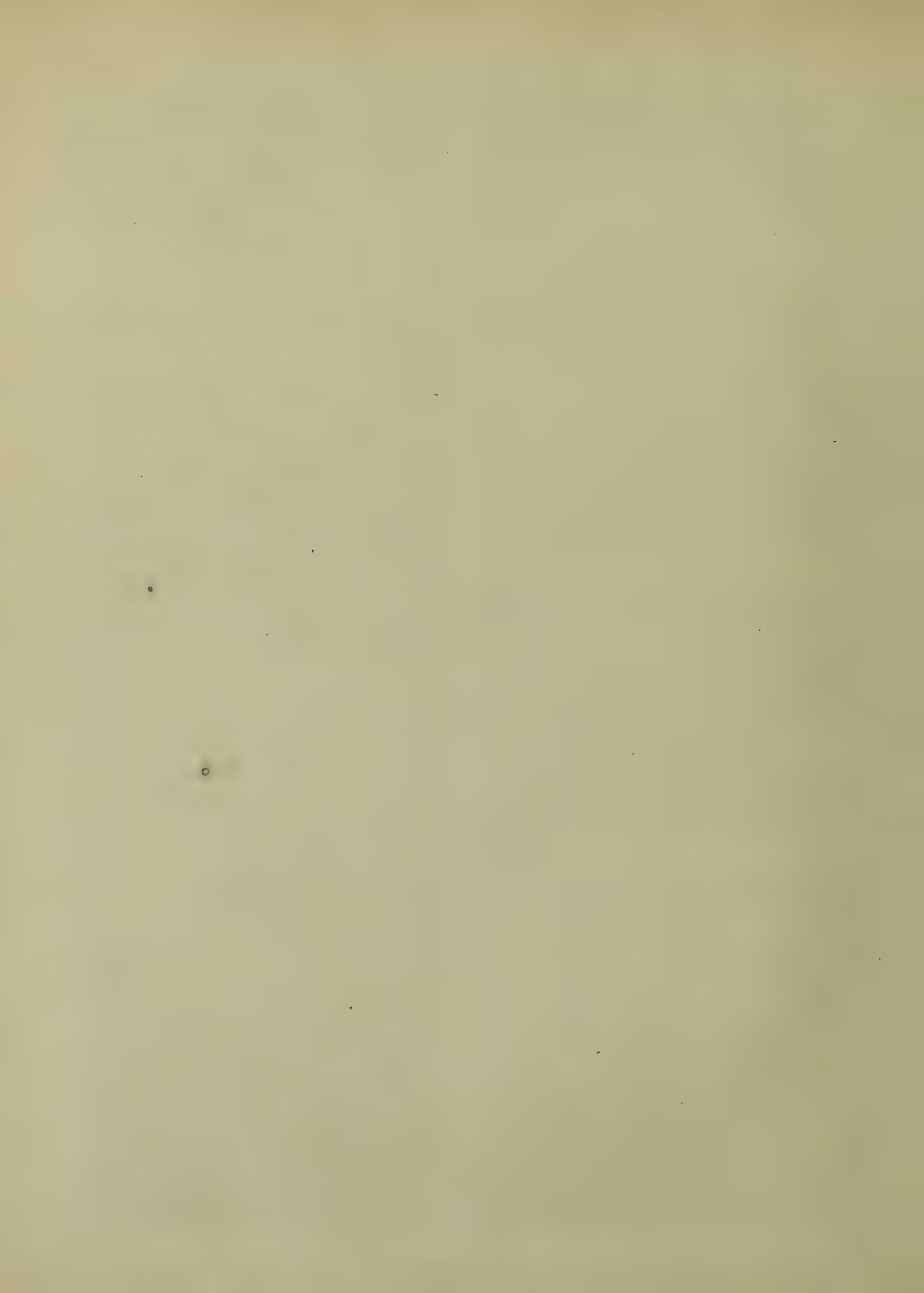
3. *Ephemera sudatoria*, the sweating sickness: tense pains in the neck and extremities; palpitation; dyspnoea, pulse rapid and irregular; heat intense; intolerable thirst; drowsiness or delirium; excessive sweat.

The history of the rise and progress of this singular and formidable disease constitutes one of the most curious articles in the annals of medicine. Its origin is involved in a good deal of obscurity; and much vague and inconclusive reasoning, concerning the mode in which it was propagated, is to be met with even among the most authentic authors who describe its ravages. It seems, however, to be generally admitted, that it first appeared in the army of the earl of Richmond, afterwards king Henry VII. upon his landing at Milford Haven, in 1485; and that it soon spread to London, where it raged from the beginning of August to the end of October. Whether the troops, which were foreign soldiers, levied by the earl of Richmond, brought the disease with them from the continent, or whether the contagion was generated in the crowded transport-vessels on-board of which they were embarked, it is impossible, amidst the deficiency of evidence, to determine. It may readily be supposed, however, that a highly malignant and contagious disease might have been generated under

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under these circumstances, especially as this body of troops is described by a contemporary historian (Philip de Comines) as the most wretched he had ever beheld; collected, it is probable, from jails and hospitals, and buried in filth. The most general opinion at the time, however, certainly appears to have been, that it arose from some peculiar state of the atmosphere, and was propagated by contagion; but no writer has distinctly pointed out the connexion of this or of any other epidemic with a specific condition of the air, nor detected any peculiarity in the circumstances attending its first appearance, or subsequent returns.

The sweating-sickness broke out in England four different times after this, but at unequal intervals. The summer season was always the period of its commencement, and it continued to rise from three to five months. It appeared during the summer of 1506; and again in 1517, from July to the middle of December; when it raged with peculiar violence, proving fatal in the course of three hours; extending its havoc to many of the nobility, and carrying off, in many towns, half the inhabitants. Its next recurrence was in 1528; at which time, though it was somewhat less fatal, many of the courtiers of Henry VIII. fell victims to it, and that monarch himself was in danger. Bellay, bishop of Bayonne, then ambassador in England, who was affected with it, reports, that of 40,000 persons attacked with it in London, only 2000 died. The last time that it visited England was in 1551, when its fatality was so great, that in Westminster 120 died of it in a day, and among others, the two sons of Charles Brandon, both dukes of Suffolk. In Shrewsbury, particularly, according to the testimony of Dr. Caius, who resided in that city, 960 died within a few days. The disorder had also, in the mean time, been desolating many parts of the continent. In 1529 it first showed itself in Holland, and thence spread to the Netherlands, and to Germany, destroying a great number of lives. It is stated to have interrupted a conference at Marburg between Luther and Zuinglius, about the eucharist. From the description which Wierus has given us of this epidemic, as it appeared in Germany, it seems to have commenced with a violent cold stage and shivering, which continued half an hour or more, accompanied with great pains in the region of the diaphragm and groin, and the other symptoms already mentioned as characterizing the disease, when observed in England. Swelling and stiffness of the hands at the beginning of the attack, and vomiting of black blood or bile, are also noticed by this author in particular. Erasmus, an eye-witness of its devastations, describes it in very forcible terms, "*visum est ac amne Phlegatoneo emissum hoc malum.*"

This disease has been described by various writers under the names of *sudor Anglicus*, *ephemera Britannica*, *ephemera sudatoria*, *hydronofus*, and *hydropyretos*. It appears from their accounts to have spared no age or condition, but to have attacked more especially persons in high health, of middle age, and of better rank and condition. The invasion of the disease was exceedingly sudden, and was marked by the affection of some particular part, producing the sensation of intense heat, extending through the limb, and afterwards diffusing itself over the whole body. This was immediately followed by profuse sweating, which generally continued more or less through the whole course of the disease, and was attended with insupportable thirst. Extreme restlessness, head-ache, delirium, nausea, cardialgia, and an irresistible propensity to sleep, characterized its progress; together with great prostration of strength, producing frequent fainting, and irregularity in the action of the heart, which sometimes palpitated violently, while at other times the pulse was weak and fluttering. In this way the patient was carried off frequently in two, three, or four, hours from the eruption of the sweat. Those more especially who bore their sufferings with impatience, and who sought relief from the sense of heat, by which they were tormented, by ex-

posing their bodies to the air, or even by putting their arms out of bed, were often suddenly struck with death. The sweat, when promoted, is represented as being unusually clammy, as well as abundant, and as having a very strong and peculiarly fetid odour. The violence of the attack generally subsided in fifteen hours, yet the patient was not out of danger till the expiration of twenty-four hours.

For a long time physicians were at a loss how to treat this new and singular malady. The fatal effects of exposure to cold, however, suggested the propriety of accumulating heat round the patient, with a view of promoting the sweat, which appeared so manifestly to be a critical discharge. The moment a person was seized with the symptoms of the disease, he was to lie down immediately in bed, without taking off his clothes, and to be completely covered, all but the face, with bed-clothes; in which situation he was to remain perfectly still, not stirring a limb, if possible, nor putting a hand out of bed. He was enjoined abstinence from food during the whole twenty-four hours, and even from drink the first five hours: then a little ale or beer, or wine and water, was to be given in small portions, and sucked through a spout, the patient still lying in the same posture. At the expiration of about fourteen hours, the bed-clothes were gradually to be removed, and the sweating refrained; and, after it was quite over, proper food was to be given to recruit the exhausted strength. This was the process when the sweat flowed spontaneously: when this was not the case, attempts were made to excite it, such as by dry and warm frictions; wine, aromatics, vinegar-whey, China-root, and other sudorific medicines. By this method of practice, actively pursued, and properly adapted to the circumstances, we are told that the disease, though so fatal when neglected or mismanaged, was got over with a tolerable certainty of success; so that, according to the observations of lord Bacon, who has given us a short account of it in his History of Henry VII. it might be looked upon "rather as a surprise of nature, than obstinate to remedies." Great stress is laid by some physicians on the danger of indulging the propensity to sleep which accompanies the paroxysm. "If they were suffered to sleep," says Cogan, "commonly they swooned, and so departed, or else immediately upon their waking." (Haven of Health, p. 262.) It appeared, however, from the testimony of the continental physicians especially, that much harm, and frequently fatal consequences, arose from the extremes to which the hot regimen was carried.

Dr. Willan, in his publication on cutaneous diseases, has thrown out a suggestion concerning the origin of this affection, which he supposes might have been owing to some disease or depravation in wheat, or to some noxious vegetable growing with it in particular situations. This idea seems to have been suggested by some analogy to be traced between the fatal epidemic, called *feu sacré*, *feu St. Antoine*, *mal des ardens*, &c. which is supposed to have originated from eating rye damaged by a parasitic plant, constituting the disorder in corn termed by the French *ergot*; and it was alleged, that the inhabitants of Wales and Scotland who fed on barley or oat bread, were not attacked. This opinion appears, however, to be untenable, and has been ably combated in a paper in the Edinburgh Medical Journal, vol. iv. p. 464.

In a curious and scarce book, called the Touchstone of Complexions, first printed in 1633, we have the opinion of Dr. Lævinus Lemnius, the famous German philosopher, who visited this country at the beginning of the 16th century, as to why the sweating-sickness should prevail here more than elsewhere. It will be seen by the following extract, that we have been long and commonly regarded by foreigners as a gluttonous nation. "The *ephemera*, or *diaria*, is the sweating-sickness, which, because it began in England, is called the *English sweat*. Why this disease is termed by the name of the English

sweat, I suppose grew hereupon, for that the people of that country be often therewith attacked, partly through their curious and dainty fare, and great abundance of meats, wherewith they cramme themselves very ingluviouly, which I noted at my late being in that realme, (about the time of midsummer,) by reason that the ayre with them is troubled, cloudy, and many times with foggy dampes overcast, whereby is engendred the cause and originall, both inwardly and outwardly, of this disease; the vehemency whereof bringeth them into a bloody sweating; wherewith they must wrestle and strive as with a most fierce and strong enemy, and which they must endeavour with all might to supplant: hereupon happen traunces and swoonings, through feebleness of body and minde, fainting and drooping of the spirits, decay of powers, stopping of the pipes and voyce, and life almost thereby cleane yielded up, and the party even brought unto death's doore."

Other books from which original information may be collected on the subject of this article are the following: A Booke or Confeill against the Disease commonly called the Sweat or Sweating-Sickness, made by John Caius, Doctor in Physic, 1552, 12mo. which was afterwards revised, enlarged, and put into a more scientific form, by the author, and published in Latin, in 1556, under the title of *De Ephemera Britannica*. Joh. Wierus, *De Sudore Anglico*. C. V. Dubourghdieu, *De Peste*. Forretus, Schol. Observ. vi. 8. Sennertus, iv. 15. Thomas Cogan's Haven of Health. Lord Bacon's Relation of the Sweating-sickness examined; &c. by Henry Stubbe, Physician at Warwick, 4to. Lond. 1671. R. Fortis, *Ephemera Anglica Pestilens*.

Genus II. *Anelus*, [from *αἰνῆμι*, I intermit.] Intermittent ague, or fever. Generic characters—Paroxysm intermitting, and returning during the course of the disease: the intermission generally perfect and regular.

There cannot perhaps be stronger evidence against the notion that local inflammation is the invariable accompaniment of fever, than that derived from the occurrence of intermittents. In these diseases, a cold paroxysm followed by a hot one, each more severe than in continued fever, leaves the patient perfectly free for some time from pain, or indeed loss of strength or derangement of function. Nevertheless, according to Broussais, these fevers are, equally with those of the continued form, *gastro-enterites*. But any one not blinded by a favourite hypothesis, cannot fail to view intermittents rather in the light of irritative than inflammatory affections; that is to say, as diseases in which the nervous system is primarily affected, and the capillary system secondarily and as a consequence. But the reason why intermissions take place is the difficult point to be decided. Darwin endeavoured to refer these periodical changes to the influence of our diurnal habits, in regard to activity and sleep, exhaustion of sensorial power and invigoration, and to the diurnal periods of heat and cold, light and darkness, &c. upon all the actions of our frame. That these circumstances greatly influence the operations of the animal body, cannot be doubted: and, were all the periods of action and intermission diurnal only, we might admit the generalization as correct. But we cannot reconcile the very frequent intermissions of disease, which continue for tertian periods, that is, during an interval of forty-eight hours, and still more those which continue for quartan periods, of seventy-two hours, with this general law. See *Zoonomia*, vol. ii. sect. 36.

The French writers (among whom the names Begin and Mongellaz occur to us at present) have speculated of late as to the cause of intermittents. But, though these gentlemen have detailed some remarkable observations concerning the laws of intermittents, we do not find any rational attempt at investigating the reason of the intermission. Dr. Park, in his Gullstonian Lecture, stated very properly, that irritation was the cause of the

fevers in question; and he founded his explanation of the cause of intermission on this assumption; viz. that the effects of irritation vary according to the mode in which it is applied; "that which is internal to the organs exciting increased contraction; while that which is external diminishes or suspends it."

"Beginning with internal irritation, its immediate effect is to excite the organs to increased contraction, as the following examples may show. Thus, emetics excite increased contraction in the stomach; purgatives increase contraction in the intestines; sudorifics stimulate the exhalent vessels to contract," &c.

On the other hand, our author infers that the influence of external irritation is to suspend or diminish contraction, because, "in affections of the stomach or intestines, rubefacients or blisters, externally applied, are used for this purpose. In morbid irritability of the womb, frictions and fomentations have that effect. In the vascular system, the influence of external irritation is obvious and visible on the surface, in the relaxation and increased fulness of vessels produced by it, in whatever mode it is applied; whether mechanically, as by rubbing, scratching, or bruising; or physically, as by the application of sinapisms, increased fulness and distention of the vessels being invariably the effect that results. And in the same way relaxation and increased fulness of the vessels is produced by strong stimulants applied to the internal surface of the stomach, where they act externally to the vessels ramified on that surface; hence the general glow and sense of warmth that arise from taking wine or ardent spirits."

The application of the above-mentioned proposition to the phenomena of intermittent fever is as follows. The first cause, whether marsh-miasma or any thing else being admitted to the mucous membranes, acts as a stimulant (according to Dr. Park causing relaxation) externally to these vessels; and hence the unusual flow of spirits which often precedes a febrile attack. As soon, however as this agent is absorbed, and carried into the circulation, it excites increased contraction, (according to Dr. Park with diminished circulation;) and hence the cold fit. "The duration of this cold stage (says Dr. Park) is limited, because the powers of action are limited; and, the more violent the contraction, the sooner those powers will be exhausted. The duration of the hot stage is limited, because the relaxation of vessels which occasions it arises solely from their previous over-action, and not from any personal debility."

The sweating-stage is referred by our author, according to an hypothesis before mentioned, when speaking of continued fever, to the relaxation of the sphincter-like extremities of the capillaries, these vessels having recovered their natural dimensions after the expiration of the hot stage. The beneficial operation of the sweating-stage is dependant, in the first place, on a reduction of irritability attendant upon a copious depletion of the vessels; and, secondly, on the partial expulsion of the irritating cause: "the quantity of which must be diminished with every paroxysm; one portion being thrown off by transpiration, while another is returned back into the *primæ viæ*, where it no longer acts internally to the vessels, and therefore no longer excites them to contraction." The paroxysm, however, recurs after a certain period; "because the portion that remains will be again taken up by absorption, and be internally applied to the vessels; where its strength will gradually accumulate, until it acquires force enough to excite another paroxysm; and thus the fever assumes the intermittent form."

Now it is obvious, that, according to the rapidity of this accumulation of the agent of the fever, so will the disease be quotidian, tertian, quartan, &c. Dr. Park likewise attributes somewhat of the second and following attacks of ague to an accumulation of excitability, which he says predisposes the body to be more strongly acted on by slighter causes; for, if this accumulation did

not take place; the miasmatal irritant being thrown off gradually by perspiration and other secretions, the paroxysms would always become milder as the disease advanced. But this is not the case.

This hypothesis, though far from being correct, appears to us the best yet promulgated; and the hint derived from it seems to us to serve as the foundation for a theory more consonant with acknowledged facts. We mean, that the idea of accumulation of material agents may be explained without the assumption (an assumption which a thousand facts deny) that internal irritants excite, while external irritants diminish, contractility. We should rather suppose the following circumstances take place: that the miasma, or other cause of ague, operates exclusively on the mucous membrane, it may be, of the stomach or lungs, but we know not where: it may be conjectured, however, on the stomach; that the irritation it excites is directly transmitted to the brain and nervous system in general, through the medium of which, as in continued fever, the capillaries are so affected as to produce fever. Absorption of the miasma taking place, this irritation is no longer kept up on the nerves of the mucous expansion; and, in unison with the law often urged, a re-action takes place over the whole body, merely in consequence of the nervous diminution of motion. Without inferring an actual accumulation of the miasm, since that would be disturbed by the passage of food, &c. we should say, that a number of *impressions* from the now secreted miasms were necessary to develop the sympathetic action of fever; and of course, as the constitution was more or less irritable, so would the febrile movements take place in a larger or shorter period. There is no necessity to infer that the quantity of miasm gets less, because we know that secreting vessels often secrete the same irritant as that which caused their morbid action; as is exemplified in morbid pains. Let it be said, however, this is only established with regard to animal irritants, we should account for the unaltered degree of fever observed in succeeding paroxysms on the well-known law of habit; viz. that sympathetic movements are more easily called into action in proportion to the frequency of their previous occurrence. It will be seen that much of this theory belongs in fact to Dr. Park; to whom moreover this much is due, that its structure is entirely owing to the train of thought into which his reasoning has cast us. And we shall endeavour to connect these views with an explanation of *tic douloureux* and other periodical nervous affections, when we come to the class *Neurotica*.

The actions which give rise to the paroxysms of intermittents, though kept up solely by irritation, being nevertheless similar in their nature to those of continued fevers, it follows, as in other diseases, that, if the contractility of the blood-vessels is impaired, actual inflammation will arise; and hence that continued fever will come on, or that a state nearly bordering on this, but at the same time capable of increase from the periodical action of the exciting cause, will occur; in which case we witness what is called a remittent fever.

Each paroxysm of an intermittent fever is divided into three different stages, which are called the *cold*, the *hot*, and the *sweating*, *stages*, or *fits*.

1. The *cold* stage commences with languor, a sense of debility and sluggishness in motion, frequent yawning and stretching, and an aversion to food. The face and extremities become pale, the features shrink, the bulk of every external part is diminished, and the skin over the whole body appears constricted, as if cold had been applied to it. At length the patient feels very cold, and universal rigors come on, with pains in the head, back, loins, and joints, nausea and vomiting of bilious matter; the respiration is small, frequent, and anxious; the urine is almost colourless; sensibility is greatly impaired; the thoughts are somewhat confused; and the pulse is small, frequent,

and often irregular. In a few instances, drowsiness and stupor have prevailed in so high a degree as to resemble coma or apoplexy; but this is by no means usual.

2. These symptoms abating after a short time, the second stage commences with an increase of heat over the whole body, redness of the face, dryness of the skin, thirst, pain in the head, throbbing in the temples, anxiety and restlessness; the respiration is fuller and more free, but still frequent; the tongue is furred, and the pulse has become regular, hard, and full. If the attack has been very severe, then perhaps delirium will arise.

3. When these symptoms have continued for some time, a moisture breaks out on the forehead, and by degrees becomes a *sweat*; and this, at length, extends over the whole body. As this sweat continues to flow, the heat of the body abates, the thirst ceases, and most of the functions are restored to their ordinary state. This constitutes the third stage. It must, however, be observed, that in different cases these phenomena may prevail in different degrees, and their mode of succession vary; that the series of them may be more or less complete; and that the several stages, in the time they occupy, may be in different proportions to one another.

Such a depression of strength has been known to take place on the attack of an intermittent, as to cut off the patient at once; but an occurrence of this kind is very uncommon. Patients are seldom destroyed in intermittents from general inflammation, or from a fulness of the vessels either of the brain or of the thoracic viscera, as happens sometimes in a continued fever; but, when they continue for any length of time, they are apt to induce other complaints, such as dyspepsia, disease of the liver, dropsy, &c. which now and then prove fatal. In warm climates, particularly, intermittents are very apt to terminate in a fatal manner. When the paroxysms are of short duration, and leave the intervals quite free from fever, we may expect a speedy recovery; but, when they are long, violent, and attended with much anxiety and delirium, the event will be doubtful.

Dissections of those who have died of an intermittent, show a morbid state of many of the viscera of the thorax and abdomen; but the liver, and organs concerned in the formation of bile, as likewise the mesentery, are those which are usually most affected.

The treatment of an intermittent fever resolves itself into those means which may be employed during a paroxysm to arrest its progress, or to mitigate its violence; and those which may prevent any return, and effect a permanent cure. This forms of course the more important part of the plan; but it is sometimes necessary to palliate urgent symptoms; and it is always desirable to suspend a paroxysm, if possible, not only to prevent mischief, but also that there may be more time for the use of the most effectual remedies. When therefore a fit is commencing, or shortly expected, we may try to obviate it by some of those means which excite movements of an opposite description in the system: an emetic will generally answer the purpose, determining the blood powerfully to the surface of the body. Should the paroxysm have already come on, and the cold stage be very severe, the warm bath, and cordial diaphoretics in repeated moderate doses, may assist in bringing warmth to the surface: when, on the contrary, great heat prevails, the antiphlogistic plan is to be pursued; and it is highly necessary, if any organ of importance be much inflamed, to take blood, especially if the patient is plethoric and robust: acidulated drink may be exhibited, with purges, keeping the surface cool at the same time. In the intermissions, stimuli of various kinds are recommended; at the head of which we place cinchona and arsenic, the former of which is to be taken largely in substance, where the disease is not complicated with visceral affection; in a quotidian an ounce at least should be given between

between the fits, in a tertian half as much more, and in a quartan two ounces. It will be generally better to clear out the primæ viæ before this remedy is begun with; and various additions may often be required, to make it agree better with the stomach and bowels, particularly aromatics and other stimulants, aperients or small doses of opium, according to circumstances. In these doses, however, it generally oppresses the stomach; and it may reasonably be doubted whether the application of bark has not often produced the visceral diseases which have happened in this complaint. The French use a preparation of this drug called *quinine*. It has this advantage over the cinchona in powder, that it contains all the remedial portion of that substance, without disturbing the digestive process by its large quantity of tough woody fibre. The dose is two grains, to be given every two hours during the intermission. The sulphuric acid has been stated to have proved very successful in the removal of this disease. But the most efficacious preparation we know of is the liquor arsenicalis: it must be given in doses of 10 or 12 drops two or three times a-day, and its effects watched.

Our readers will bear in mind (see p. 55 of this article), that the *black pepper* (in doses of 6 to 10 grains twice a-day) has been successfully given by Drs. Frank and Ghighini. Since that paragraph was written, many respectable testimonials have appeared in favour of the use of this drug. It is remarkable that this is merely an old medicine revived, Dioscorides and Casimir Medicus having both used it in the treatment of intermittents.

This complaint often seems kept up by an habitual operation of action after the exciting cause has ceased to exist. It is in these cases that so much has been done by mental impressions. We might fill a page with an enumeration of the various inert remedies which have, through the medium of imagination, cured the ague. It will be sufficient to extract two sentences from the works of two of the first philosophers of this country. "I myself," says Mr. Boyle, "was cured of a violent quotidian by applying to my wrists a paste made of bay-salt, new hops, and blue currants; which has also relieved many others both of quotidians and tertians." (Philos. Works abr. tom. i. p. 80.) And Lord Bacon says, that "juices of stock-gilly flowers, rose-campion, garlic, and other things, applied to the wrists, and renewed, have cured long agues." His lordship likewise recommends, in the heats of agues, to hold eggs of alabaster and balls of crystal in the hands.

The genus *Anetus* is divided by Dr. Good into five species, and those species into many varieties, as will appear from the following enumeration.

1. *Anetus quotidianus*, the quotidian ague: intermission about twenty-four hours; paroxysm commencing in the morning; usual duration under eighteen hours. This species is subdivided into the following varieties.

α. *Partialis*: confined to a particular part or organ, usually accompanied with distressing pain. Sometimes limited to one side. Sometimes, and still more generally, confined to the whole or half the head, embracing many cases of cephalæa.

β. *Comitatus*: catenated with, or giving rise to, foreign symptoms or other diseases.

γ. *Protractus*: leaving the intermission inordinately short, or imperfect.

δ. *Anticipans*, the anticipating quotidian of Fordyce: the paroxysm anticipating its antecedent period usually by about two hours; and continuing the same anticipation at every recurrence; so that the accession may hereby be thrown into any hour of the day or night.

ε. *Cunctans*, the retarding quotidian: the paroxysm delaying its antecedent period, usually by about two hours; and continuing the same delay at every recurrence as above.

2. *Anetus tertianus*, the tertian ague: intermission

about forty-eight hours; paroxysm commencing at noon; usual duration under twelve hours. Divided into,

α. *Comitatus*: catenated with other diseases; and,

β. *Protractus*: leaving the intermission inordinately short or imperfect.

3. *Anetus quartanus*, the quartan ague: intermission about seventy-two hours; paroxysm commencing in the afternoon; usual duration under nine hours.

This, like the former, has α, *Comitatus*; and β, *Protractus*. Also,

γ. *Anticipans*, or anticipating quartan: the paroxysm anticipating its antecedent period.

δ. *Cunctans*, or retarding quartan: delaying its antecedent period.

4. *Anetus erraticus*, the irregular intermittent: intermission and paroxysm less regular; the former more than seventy-two hours.

This is divided into, α, *Quintanus*; β, *Sextanus*; γ, *Septanus*; δ, *Octanus*; ε, *Nonanus*; ζ, *Decimanus*; and lastly, η, *Vagus*, which is equally irregular in the violence of the paroxysm, the duration of its stages, and the period of its return.

5. *Anetus complicatus*, the complicated intermittent: paroxysms intricate, multiply, or both. Here we have no fewer than eight varieties.

α. *Tertianus duplex*, or double tertian.

β. *Tertianus triplex*, or triple tertian.

γ. *Tertianus impar*, unequal double tertian.

δ. *Tertianus duplicatus*, single tertian with two paroxysms on the regular day of attack.

ε. *Quartanus duplex*, or double quartan.

ζ. *Quartanus triplex*, or single quartan with regularly-returning paroxysms, each of the intervening days being marked with a slighter attack.

η. *Quartanus duplicatus*, or single quartan with two paroxysms on the regular day of attack.

θ. *Quartanus triplicatus*, or single quartan with three paroxysms on the regular day.

Genus III. *Epanetus*, [from *επανημι*, I remit.] Remittent fever. Generic characters—Strikingly exacerbating, and remitting, but without intermission; one paroxysm every twenty-four hours.

It is quite unnecessary to describe minutely the symptoms of the remittent fever, after the ample detail which we have given of those of fever in general. We may just observe, however, that it varies extremely in its character, according to the season, climate, and other circumstances under which it appears. In its milder forms, the remittent begins with chilliness, lassitude, pains in the bones, head-ache, and a disordered condition of the stomach, loss of appetite, sickness, and even vomiting. At night the febrile symptoms run high; the heat and thirst are great, the tongue and mouth are parched, the pain of the head is violent, the patient is totally unable to sleep, and is continually tossing and tumbling about, and often becomes delirious. But generally in the morning, an imperfect sweat brings on a remission of all the symptoms. In the evening, the paroxysm returns, but is not preceded by any cold fit or shivering; yet it is commonly more severe than the former. Next morning it remits as before; and these periodical changes recur daily, becoming however less marked, if the disease be neglected, until the fever insensibly assumes a continued form. The pulse is full and quick during the remissions to indicate fever; but rigors seldom precede the fits after the first attack. Many patients discharge a bilious matter from their stomachs by vomiting, and all are disordered in that organ. The more violent form of this complaint, as exemplified in the yellow fever, has already been described. The milder form is to be treated according to the same indications as the severe; but, of course, by much less powerful measures. Here we have three species, with their varieties.

1. *Epanetus mitis*, the mild remittent: pulse regular, though

though frequent; debility slight; remission distinguished by sweating or a cloud in the urine.

2. *Epanetus malignus*, the malignant remittent; pulse small, hurried, irregular; debility extreme; often with signs of putrefecency. Of this there are four varieties.

a. *Autumnalis*, the autumnal remittent: often with a strong tendency to assume the tertian or double tertian type.

6. *Flavus*, the American yellow fever.

γ. *Ardens*, the burning remittent, the *Causus* (*Καυσος*) of Hippocrates.

δ. *Asthenicus*, the highly-debilitating remittent of the south of Spain, Gombron, Breslaw, &c.

3. *Epanetus hectica*, hectic fever: pulse weak; stages of chilliness, heat, and sweat, variously intermixed, and sometimes single; the cold stage exhausting; exacerbation chiefly in the evening: urine with a natant surfuraceous separation; countenance slightly flushed or pale, sunk, fallow, shrunk, and tremulous; debility, but not decided prostration of strength; tongue whitish; emaciation great, but not sudden; vertigo, or pain in the head; position often supine; anorexia, sometimes nausea and diarrhoea.

Some writers have detailed accounts of an idiopathic *Febris hectica*; but we believe it will generally be found that this is merely symptomatic of a grave attack of *Dyspepsia*, under which article it has already been mentioned. It is for the most part found as a symptom in tabes; and sometimes in phthisis, chlorosis, lues, and scirrhus diseases of various organs.

Genus IV. *Enecia*, [from *ἡνέκης*, perpetual.] Continued fever. Generic characters—One series of increase and decrease; with a tendency to exacerbation and remission, for the most part appearing twice every twenty-four hours. There are three species, besides varieties.

1. *Enecia cauma*, inflammatory fever; the *Synocha* of Sauvages and Cullen. Heat greatly increased; pulse quick, hard, and strong; urine red; disturbance of the mind slight. Dr. Good has four varieties.

a. *Plethoricum*. "Produced (says Dr. Good) by the stimulus of violent passions, undue muscular exercise, or heating foods, upon a plethoric habit; as also by a suppression of accustomed discharges, as those of menstruation, habitual venesection, or perspiration."

β. *Biliofum*: produced by the stimulus of an undue secretion or absorption of bile into the sanguineous system.

γ. *Pleuriticum*: accompanied with a violent stitch or pain in the pleura.

δ. *Cephalalgicum*: accompanied with great pain in the head.

2. *Enecia typhus*: pulse small, weak, and unequal; usually frequent; great prostration of strength, and disturbance of the mental powers. Two varieties.

a. *Mitior*, the nervous fever: with slight shiverings; heavy vertiginous head-ach; oppression at the præcordia; nausea; sighing; despondency; coma or quiet delirium; urine whey-like.

β. *Gravior*, putrid fever: countenance shrunk; eyes vague, suffused, and with a film of mucus; tongue chapped, dry, and very sordid; complexion brownish or slight pink; lips tremulous, sometimes muttering; position supine, limbs extended; respiration frequent and tremulous; little increase of heat; bowels irregularly affected; relaxation of the sphincter rectum, &c. usual duration from six to forty days.

3. *Enecia synochus*: compounded of cauma and typhus: in its commencement resembling the former; in its progress the latter. Here are four varieties.

a. *Sudatorius*: carried off by a critical sweat in an early stage of the disease.

β. *Flavus*: with yellowness of the skin, attended with a sense of burning heat. Nearly allied to *Epanetus flavus*, and *E. ardens*, varieties of *E. malignus*.

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γ. *Puerperarum*, child-bed fever. See the article PARTURITION, vol. xviii. p. 674.

δ. *Soporosus*: accompanied with great drowsiness, or stupor.

Order II. *PHLOGOTICA*, [from *φλεγο*, I set fire to, or burn.] Inflammations.

Having already stated in what mode the primary phenomena of inflammation were induced, and that the varieties of appearance this action exhibits were the result of changes in the secernent system rather than in the red-blood vessels; we shall now proceed to consider the latter part of the position in question, i. e. what changes the system of the white vessels undergoes in order to produce the varieties of inflammation.

The principal varieties inflammation exhibits on its first occurrence, are those of phlegmon, erysipelas, and a mixture of both. In each, heat, pain, redness, and swelling, are apparent; but erysipelas differs from phlegmon in this, that, while in the latter the degree of pain, redness, &c. gradually decreasing, clearly indicates, that the morbid change in the properties of vessels is most intense in the middle of the injured part, and that the natural action is gradually restored towards its circumference; in the former, heat, redness, &c. present an abrupt discontinuance, one line having all the characters of inflammation, but the next being perfectly pure from disease. The pain also is not of the same kind, nor the swelling so great, in erysipelas as in phlegmon.

The remarks made while treating on inflammation in general, as to its mode of production and its general effects on the constitution, are most particularly applicable to phlegmon. It remains, therefore, that we should now speak more particularly of erysipelatous inflammation. From various circumstances it seems pretty clear, that erysipelas is inflammation of the skin; but how it happens that the vessels of the skin should differ so materially from other parts in the phenomena they exhibit under the same action, is one of the unsolved problems of our science; nor, as far as we know, has its solution been ever attempted. According to Cullen, indeed, erysipelas depends "on a matter generated within the body, and thrown out, in consequence of fever, upon the surface of the body." Mr. Pearson represents it as the "critical termination of another disease, such as obstructed menstruation, quartan ague, suppressed suppuration, spasmodic and convulsive diseases." But these are merely vague conjectures as to remote causes, and have nothing to do with the question, why does inflammation in the cutaneous structure exhibit irregularity of swelling, and burning pain, &c. and why does inflammation in other parts manifest the phenomena of phlegmon? If it be said, that this depends on the peculiar structure of the skin, we must show that those authors have been deceived who have spoken of phlegmon attacking the skin, and of erysipelas attacking deep-seated parts. It is a remarkable fact, that those authors who have endeavoured to explain the phenomena of inflammation have for the most part confined their attention to phlegmon. It does not accord with the purpose of the present essay to speculate on this difficult subject; but we shall just lay the facts before our readers, whence they may draw their own conclusions.

In the first place, if erysipelas be not solely confined to the skin, it is in this structure that it is most frequently met with, and most suddenly, extensively, and clearly, manifested. It is much influenced by and dependent on the state of the nervous system, and of the primæ viæ, attacking for the most part intemperate livers; and, when it attacks that part of the skin in which the nervous system is most acute, it is developed with astonishing force and celerity. It is liable to be connected with phlegmon, in which case we should suppose phlegmon to be the affection of deep-seated erysipelas of the superficial parts of the body. It is intimately connected with the state of

the secernent vessels; and one peculiar connexion between erysipelas and those vessels is shown in what is called œdematous erysipelas. It is also connected with a vast majority of that diseased action of the secernents which are called cutaneous diseases. It is unattended with the throbbing which is experienced in the arteries of phlegmonous limbs. The following characteristics may be also added. When erysipelas is of an unmixed kind, it has not the dark red colour which common inflammations have, but a lighter red, with a yellow tinge, which is particularly observable towards the termination of the disorder. The swelling which occurs is unattended with any remarkable induration, and forms a very inconsiderable prominence. The skin of the inflamed part has a shining appearance, and, on being touched with the finger, turns white at the spot where the pressure is made; but the bright red colour immediately afterwards returns. The pain is usually of a burning shooting description; and the patient frequently complains of a sort of itching, which is found to be particularly annoying. The swelling, which happens in cases of erysipelas, is not only less hard and elevated than that of phlegmonous inflammation, but it is, at the same time, quite irregular. Another remarkable feature of erysipelas, is the manner in which this inflammation often changes its situation, by getting well on one side, while it is spreading in some other direction. The alteration which the skin undergoes in erysipelas consists in its feeling at the part affected less pliable than in the natural state, and a little thickened.

It will be recollected that we have objected to all further division of inflammation than this, into phlegmonous and erysipelatous; but many divisions have been founded on the terminations of inflammation. These we consider as dependent on the action of secreting vessels; and the latter action dependent on the plethoric state of the blood-vessels in inflammation, and the altered condition of their own nerves. We proceed therefore to speak of the terminations of inflammation.

The first termination is that in which, the capillaries recovering their powers, and the nerves losing their increased sensibility, the phenomena of inflammation ceases to exist, and the natural functions of the parts affected continue. This is the most favourable event that can happen; but, according to Dr. Parry, the least frequent. This is true of phlegmon, but by no means of erysipelas. Even in phlegmon, resolution often takes place before the swelling of the injured part has come on.

Now as to the connexion between inflammation and its products, it is to be noted, that the latter are produced in two ways: first, by simple increase of alteration in the action of the secernents, as in extravasation of fluids on the nervous and serous membranes; the second, by the absolute accession of new properties in some of the inflamed vessels, or, by the actual growth of new vessels, as in adhesion, suppuration, and ulceration.

It was a favourite opinion of the late John Hunter, and one which has been very generally adopted, that not only inflammation, but each of the above-mentioned terminations, were instituted for the determinate purpose of curing disease; that, if the powers of a part were not competent to produce one action, they set up another, which required less power, and which might attain the object in view, though more slowly and less efficiently. There is something hypothetical in all this; yet whoever attentively considers the reparative processes of the body, cannot fail to conclude, that the laws to which they are subjected are framed in such a manner that their operation tends under ordinary circumstances to the sanity of our frame. As, however, the immediate agents concerned in their laws can have no choice of action or adaptation of means to ends; as they cannot vary with uncommon circumstances; so we frequently witness from their operation baneful effects; and hence it becomes our province to control their operations under

many circumstances, though upon the whole we must view them among the most beautiful phenomena which the animal economy presents.

The first division of the products of inflammation embraces the history of those arising from the simple increase of, and alteration in, the action of secernent vessels. It is obvious that these products of inflammation can only be manifested in particular structures. Various divisions of these structures have been made by Bichat; but it is pretty generally allowed, that the divisions of membranous parts made by this author are too minute. The production of the first terminations of inflammation requires the presence of an apparatus furnished with exhalants or secretory vessels from the arterial or capillary system of the respective parts. This apparatus consists, either of some simple surface, as the skin and various parts of the mucous membrane; or of some natural cavity, the internal surface of which is lined with similar membrane, as the stomach, bowels, bladder, &c. or of some discontinuity of substance, forming a virtual, though often not a real, cavity, into which either exhalants open immediately, as in the cellular system; or which is lined with membrane, capable, by means of similar exhalants, of furnishing its appropriate fluid, as the ventricles of the brain, medulla oblongata, and nerves; the intervals between the coverings or sheaths of the same parts, the duplicatures of the pleura and peritonæum, the pericardium, the synovial receptacles, &c. Or, lastly, this apparatus consists of some excretory duct or ducts communicating with the part, if glandular, as in the mammaræ, liver, kidneys, salivary glands, &c. in which cases the duct answers the double purpose of providing during health a salutary fluid, and of evacuating the part, when affected with excessive momentum of blood.

It is observable also, that the several organs so supplied have, usually, the combination of two of these circumstances of structure, so as to acquire a double power of evacuation, either immediately from themselves, or from neighbouring portions of the same arterial branches. Thus the lungs have pleura without, and mucous membrane within; the liver, peritonæum without, and pori biliarii from within, &c. To these may be added the cellular, parenchymatous, and other, substances, forming a proportion of the mass of various parts, and affording a third emunctory for the superfluous contents of blood-vessels, by means of exhalants and secretory capillaries, every where opening into them, as through the membranes before described. This is the case in the medulla of the brain, and in various other organs; in which we often find exhaled fluids, as well as between the membranes and in the ventricles of the former, and on the several surfaces of the latter.

The nature of the fluids effused in inflammation, and their effects on the several parts, vary considerably, according to the nature of the texture from which they originate, and to the degree of the malady which gives them birth. From each of these structures similar products are derived. In all of them the first operation of inflammation is generally to increase the natural secretions. Hence mucus is more copiously secreted in the alimentary and pulmonary expansions of the mucous membrane, in the uterus, and in the vagina. Serum is copiously effused in the cellular tissue, on the serous membranes; and the secretion of tears is increased from the eyes, &c. As the inflammation advances, or as it is more intense, the products vary: the mucous membrane pours forth coagulating serum, fibrine, pus, or blood; and the serous membrane similar products. Neither chemical analysis nor the known properties of these substances allow us to infer any material difference in them, whether they arise from the serous or mucous membranes.

All those parts which are secreting surfaces, and at the same time have outlets, as the mucous membranes, are not commonly subject to that process called *adhesion*; for the

the natural secretions of the part act perpetually so as to throw off the firmer accumulations, and to evacuate them from the body: while, on the other hand, increased secretion on the serous surfaces, when it becomes indurated, agglutinates the corresponding parts together, becomes organized, and thus are adhesions contracted. It is by this process occurring in artificial cavities, as wounds, &c. that reparation takes place. The same process may be considered as the origin of that cream-like substance deposited in the cavities of joints, in capsular ligaments, in the sheaths of tendons, &c. which, by the absorption of the thinner parts, becomes what is called *chalk-stone*, a well-known effect of highly-inflammatory gout, and consisting of uric acid. The same is deposited in the cellular space between the inner and fibrous coats of the larger arteries, becoming true bone, or phosphate of lime, and producing such distressing effects, resulting, according to some late observations, from an inflammatory affection of the *vasa vasorum*; and when on the coronary arteries of the heart, according to Parry, the proximate cause of syncope angens.

Though these various products are for the most part the result of inflammation, yet it is by no means clear that they are not sometimes present without the occurrence of this action. Copious mucous excretions are often habitual to old persons in whom we cannot infer increased vascular action; and the various depositions of the serofulous diathesis seem generally to be causes rather than consequences of inflammation. On the other hand, as increased secretion may exist without inflammation, so the latter may occur without the former; nor does the peculiar modification which gives rise to this circumstance seem clearly ascertained. It would seem indeed, that the violence of the inflammation had some influence over the suspension of secretion; but this does not uniformly happen, since the violent inflammation we have mentioned as incidental to fevers of hot climates are often accompanied from the first with copious though morbid secretion. In the generality of cases, however, in which secretion is stopped, we believe it will be found, that the capillary system is less superficially and more violently inflamed than when this action is increased.

It is also to be noted, that on some occasions increased secretion brings on inflammation, though by no means so frequently as inflammation induces secretion. In these cases we observe slight and unimportant excesses in the secreting powers, after having continued some time, suddenly exhibit the regular phenomena of inflammation.

When inflammation terminates by the processes of adhesion, suppuration, or ulceration, we infer, that either new secreting vessels are formed, or that the sanguineous capillaries acquire the secreting faculty. Of adhesion we have before spoken. It is generally allowed to be produced by the formation of new vessels. We infer that suppuration and ulceration are processes which depend on the capillaries acquiring new faculties, because there is in each a loss of substance which could only be thus accounted for. The capillaries having acquired the above-mentioned property, and lost that of transmitting blood to the affected structure, must diminish from the deficiency of sanguineous supply, absorption being supposed to continue. Moreover, pus, the fluid secreted, is, according to recent experiments, but slightly removed in its nature from the blood itself. Hence it would naturally be the production of vessels which possessed the secreting power in the least perfect manner. We infer it also from the supposed inadequacy of the common secretions of those parts in which suppuration is often established to pour forth such copious supplies of pus; and lastly we infer it, because how, otherwise than on the supposition that a change takes place in the terminations of the capillaries, could we explain the fact, that healthy ulcers do not bleed?

The last and most fatal termination of inflammation is *gangrene*. This also exhibits somewhat different appearances,

as it affects the bones or flesh, or as it is produced from the surface of an ulcer, in which latter case the gangrened portion is called a *slough*. Gangrene is termed the death of a part; and is generally supposed to be the actual abolition of all vital powers and motions, and that the part actually returns to inert matter. The fact that gangrened parts, look different from dead parts is readily explained by the supposition, that the former have entirely lost their contractility and elasticity, while the latter, as is well known, do not lose the first property for some hours, nor the second for some days, after what is commonly called death. See *Gangrene* in this article.

The natural connexions of philosophy would lead us in this place to an examination and history of local injuries followed by inflammation and the constitutional or febrile disturbances arising therefrom. As however the arbitrary diseases of Medicine and Surgery have separated the practical application of these rules, we must defer these subjects till we arrive at the article *SURGERY*. To that article we shall also refer the reader for an account of external injuries, or such as belong to manual treatment.

It may not be amiss, however, to observe, that the febrile state which supervenes on local injury does not differ from common fever, except that, being kept up by a certain irritating cause, it can only be cured by the removal of such cause; and hence that all treatment must be directed to the cure of the local disease. And farther, as the local injuries are intense, or the constitution morbid, the fever will assume inflammatory or hectic character, or a mixture of both.

This Order contains eleven Genera. To explain Dr. Good's arrangement of Inflammation, we shall copy part of a note subjoined to this order. He therein remarks, that "The whole of the observations of Mr. John Hunter upon this subject are worthy of being deeply studied; and will not a little elucidate the nature of the arrangement introduced into the present method. It may be sufficient to observe, that in treating on inflammation, he divides the body into two parts: 1, the circumscribed cavities, organs, and cellular membrane which connects them; and 2, the outlets of the body, commonly called mucous membranes, as the ducts of the glands, alimentary canal, &c. He distributes inflammatory affections into three kinds, adhesive, suppurative, and ulcerative. Adhesive inflammation belongs chiefly to the former of the above two parts of the body, *where they are deeply seated*; and appears intended to take place in order to prevent suppuration. It applies therefore peculiarly to the genus *Empyema* in the present order, except in gastritis, enteritis, and cystitis; in all which, however, we frequently meet with striking examples of the adhesive inflammation, or true *Empyema*; inasmuch that the affected organ becomes at times so closely united with some adjoining membrane or other organ, as to obtain a kind of artificial wall, or paries, and prevent the escape of its contents into another cavity, when ulcerated through the whole thickness of its substance. Suppurative inflammation belongs chiefly to the same division of parts, *placed near the surface*; and consequently applies peculiarly to the two genera *Phlegmon* and *Phyma*. The ulcerative belongs chiefly to the second order of parts, as the mucous membranes and outlets; and hence principally applies to the genus *Erythema*, as it must also be allowed to do to that of *Phlysis*. Deep-seated suppurative inflammations and abscesses cannot well be placed in either of these genera; and have a claim to be considered by themselves; they are hence included in the genus *Apoplema*, with which the order opens.

Genus I. *Apoplema*, [*αποπλημι*, to recede from.] Deep-seated abscess. Generic characters—Large suppurative inflammation in a deep-seated organ; pus copious and confined. This genus contains five species.

1. *Apoplema commune*, or simple abscess: inflammation

tion common to the fleshy parts; pain obtuse; tumour spreading externally; tender to the touch; pus laudable; readily incarning when opened. See SURGERY.

2. *Apostema psoaticum*, psoas abscess: pain and tension about the loins, shooting down the spine and thigh; difficulty of standing erect; fluctuating enlargement along the psoas muscle; apex of the tumour immediately below the groin. See SURGERY.

3. *Apostema hepaticum*, abscess of the liver: diffuse pulsating tumour in the region of the liver; preceded by pain, a yellow countenance, and shiverings.

This is by no means a common complaint in this country; but it is met with in hot climates, where indeed the medical practitioners are said to be remarkably expert in performing an external operation for its relief. We should take especial care to prevent suppuration from happening in this important organ, by active treatment during the inflammatory period of the complaint. Suppuration is prognosticated if inflammation continues in the liver several days; if the pain remits, and is followed by a pulsation in the same place, and if shiverings come on, with a countenance of a yellowish colour; soon after which a tumour and a sense of weight are perceived in the region of the liver: a hectic fever follows, with thirst, and extreme feebleness. Aretæus observes, that pain generally extends to the throat, and to the extremity of the shoulder; and a dry, but not very frequent, cough afflicts the patient. He further remarks, that this disorder is sometimes mistaken for a tumour of the peritonæum; but that the latter is more irregular, and is not circumscribed by the limits of the hypochondrium.

The favourable termination of this complaint depends on the manner in which the abscess bursts. If externally, we may entertain some hope; if internally, at the cavity of the abdomen, it is for the most part fatal. See HEPATITIS.

4. *Apostema empyema*, lodgment of matter in the chest: fixed pain in the chest; breathing laborious, but easiest in an erect position; difficult decubiture on the sound side; fluctuating enlargement on the side affected; dry tickling cough. It is often brought on by diseased action in the pleura without ulceration. There is reason for believing that matter is contained in the cavity of the chest, when, after a pleurisy, or inflammation in the thorax, the patient has a difficulty of breathing, particularly on lying on the side opposite the affected one; and when an œdematous swelling is externally perceptible. The malady is sometimes relieved by the operation of paracentesis thoracis, (see SURGERY;) and cases are related in which the matter is said to have been absorbed.

5. *Apostema vomica*: deranged function of a thoracic or abdominal organ, succeeded by copious discharge of pus into some part of the alimentary channel, and its evacuation by the mouth or anus.

The term is here used in the large sense in which it is employed by Celsus, who applies it to a bursting of pus from the liver, or any other large internal organ, as well as from the lungs. "Si vero jecur vomica laborat, eadem facienda sunt, quæ in cæteris interioribus suppurationibus." Lib. iv. cap. 8. Sauvages follows him in this interpretation. Boerhaave and Cullen confine vomica to the lungs, and that in a more restrained sense than most writers; for they limit it to what has been called, though with no great accuracy, *occult vomica* (*vomica clausa*). Linnæus and Vogel, on the contrary, while they confine the term to the lungs, explain it by *open vomica* (*vomica aperta*), in which the pus is thrown forth profusely and suddenly.

Genus II. *Phlegmone*, [from φλεγω, to inflame.] Phlegmon; abscess or tumour near the surface. Generic characters—Suppurative subcutaneous tumour; tense; glabrous; painful; at length fluctuating, and bursting spontaneously; the pus uniform and mature.

The treatment of phlegmon is to be conducted, as far as local treatment is regarded, by topical applications, which are generally either cold or warm lotions. Heat is well known to promote and increase all animal actions, and must therefore tend to keep up and augment the process of inflammation. Hence arises the indication to diminish the heat of the part affected, by making use of cold topical applications, and maintaining a continual evaporation from the inflamed surface. The common plan is to dip linen in the saturnine lotion, and, after folding it once or twice, lay it all over the part affected, taking care afterwards to keep it constantly wet with the application. In most instances cold water will answer every purpose; in others the aqua ammoniæ acetatæ, or lotions of the sulphate of zinc, alum, &c. may be employed. Poultices made with linseed-meal and water, or with bread and water, are the ordinary applications of this kind; and so great is the importance which ought to be attached to the circumstance of making them soft and unirritating, that a surgeon of the first eminence has not disdained to make their composition the subject of part of a lecture before the College of Surgeons. With poultices, fomentations are also frequently proper, as having in all severe cases a great effect in lessening the pain. Likewise, when suppuration is unavoidable, they accelerate the cure by promoting the formation of matter, and hastening its approach to the surface of the body. The common method is to dip flannels in a decoction of chamomile-flowers, or white poppy heads, wring them, and apply them very warm to the inflamed part; but warm water answers the purpose as well. In discriminating the cases which require cold applications from others to which warm ones are most serviceable, the practitioner should always bear in mind, that, when suppuration is inevitable, it is invariably most advantageous to discontinue cold astringents without delay. In general where the chance of the phlegmon being resolved is great, cold applications are best; but for the most part the choice of the topical remedies must be regulated by the patient's feelings. There are some patients who seem to derive most ease from hot applications; there are others who appear to experience most comfort from cold ones. The latter remedies ought perhaps rather to have the preference, when the prospect of preventing suppuration is fair and rational, and when at the same time they afford as much ease as poultices. There are seven species.

1. *Phlegmon communis*: tumour common to the surface; bright-red; hard; defined; hemispherical; polarized; gradually softening and bursting at the pole.

2. *Phlegmone parulis*, gum-boil: tumour seated on the gums; deep-red; hardish; undefined; pain obtuse. Divided into two varieties.

α. *Simplex*: limited to the substance of the gums. β. *Cariofa*: connected with a caries of a tooth or socket. When the former variety happens, the part may be freely opened with the lancet, and the gum fomented. When the latter variety comes on, the offending tooth must be drawn.

3. *Phlegmone auris*, imposthume in the head: tumour seated within the ear; pain acute, throbbing; heat and redness spreading externally; hearing distressingly keen, or stunted with imaginary sounds; abscess bursting with the sense of a loud snap or explosion. In this complaint we should syringe the inside of the ear with soap and water, and apply a blister behind it. A roasted onion, though an anile prescription, will also be found useful: it is applied in the helix of the ear as a poultice.

4. *Phlegmon parotideæ*, phlegmon of the parotids: tumour seated under the ear: reddish; hard; pain obtuse; suppuration slow and difficult. Two varieties.

α. *Benigna*: incarnation and cicatrization regular and obtruded.

β. *Maligna*: pus illaudable, profuse, protracted; succeeded by foul sloughs. Dr. Parr gives the following account of this second variety. The malignant parotid swells

swells like the milder kind, and is at first scarcely distinguishable from it, but by its attacking in advanced life, and in females about the periodical change. It is not painful, and advances slowly to suppuration. If the latter can be prevented by leeches, cooling applications, &c. the inconvenience, for many years, is not considerable; but, when it suppurates, the pus is seldom laudable, and the patient soon sinks from the discharge. In this case, bark, hemlock, and the whole tribe of poisons, have been tried in vain. The wound enlarges, the sloughs become deeper, till the constitution is completely undermined, and gradually sinks. The scirrhus parotidis may be extirpated, (though this is one of the most difficult operations in surgery;) but the malignant sink deeper, and will not admit of the operation, which is always dangerous from the numerous large vessels in the neighbourhood.

5. Phlegmone mammæ, abscess of the breast: tumour seated in the breast; pale-red; hardish; in irregular clusters; pain pricking and acute; suppuration quick and copious. Here also we have two varieties.

α. Violens: from severe pressure or blow.

β. Lactantium, milk-abscess: from redundancy of milk. Both varieties are characterised by tumefaction, tension, heat, redness, and pain; sometimes in both breasts, but most commonly in one. Pyrexia generally attends the disease. It is sometimes very quickly formed, and in general without any thing preceding to show it; but now and then a slight shivering is the forerunner. This disease terminates either in resolution or suppuration. If left to itself, it generally terminates in suppuration. But it is often of long continuance; it is very painful, but seldom fatal, unless when absolutely neglected. The termination of the disease by gangrene is seldom to be apprehended; at least few, if any, have seen the disease terminate in this way.

As to the first variety, during the inflammatory stage, cold lotions, purging, &c. may be had recourse to. In the suppurating stage, the same treatment is required as in the var. β, or milk-abscess. This latter may in general be prevented by an immediate application of the infant to the breasts after delivery, or at least before they are turgid with milk. When pus is actually formed, a soft warm poultice, composed of bread and water, or of a decoction of poppies and linseed meal, should be constantly kept upon the part, and renewed every three or four hours; at the same time carefully suspending the enlarged breast, with an handkerchief spread under it, and tied behind the neck. It is very rarely proper to make any artificial opening in these abscesses: they should be permitted to burst of themselves, and be poulticed as long as the hardness or inflammation continues. During this painful period, the child must be suckled by the healthy breast; for it rarely happens that the milk is pure during a state of inflammation, or that the mother can bear her child's attempt to draw the nipple.

During the suppurating process, the dietetic regulations laid down under Dyspepsia must be rigorously enforced. The local application must vary with the appearance of the ulcer when it heals; and the administration of remedies will also be regulated by the same criterion. See PARTURITION, vol. xviii. p. 712, 13.

6. Phlegmone bubo: tumour seated in a conglobate gland; reddish; hard; diffuse; not easily suppurating; opening with a callous edge. Divided into,

α. Simplex: unconnected with any constitutional or foreign poison.

β. Virulentus: produced by specific virus, or connected with constitutional affection. The glands mostly infected are those of the inguen and axilla. This last variety is found chiefly in lues and pestis. Often cured by vomits after suppuration has advanced.

The first variety will require the same treatment during its inflammatory stage as phlegmon in other parts, and the same during the suppurating stage as common

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abscess. The second variety, being symptomatic of other diseases, will properly be treated under those heads.

7. Phlegmone phimotica, phimosis and paraphimosis: tumour seated in the prepuce; diffuse; obtusely painful; imprisoning the glans, or strangling it by retraction.

α. Incarcerans: the prepuce protracted, and imprisoning the glans. Numerous subjects are born with a contraction of the aperture of the prepuce; and the case is then called a *natural* or *congenital* phimosis. Sometimes, in adults, and particularly in old persons, the prepuce contracts so much, without any evident cause, that its cavity becomes filled with urine during the act of making water, and great pain is the consequence. In cases where the opening is exceedingly small, and the disorder is either congenital, or has occurred without obvious inflammation, it is by no means an uncommon circumstance for calculi to be formed under the prepuce. These sometimes resemble in shape the glans, on which, as it were, they are moulded. When the phimosis is congenital, and has existed a long while, it frequently happens that, in consequence of inflammation, adhesions have taken place between the glans and the prepuce; and, in this event, it may not always be in the power of the surgeon to effect a cure. The possibility of doing so must depend, in a great measure, upon the extent and firmness of the adhesions. According to Richerand, it is seldom practicable to destroy them after the patient has attained the age of puberty.

No operation ought to be practised on children for the natural phimosis, unless pressing inconvenience should immediately arise from the malformation. The constriction generally goes off, as such subjects approach the adult state. For the mode of performing the operation when necessary, see SURGERY. For the treatment of the disease, and also the other variety, β, strangulans, or paraphimosis, in which the prepuce is retracted and strangling the glans, see *Lues* of this article.

Genus III. *Phyma*, [Gr. a tubercle, from *φωω*, to break or gush out.] Boil, carbuncle, &c. Generic characters—Imperfectly-suppurative, cutaneous or subcutaneous tumour; the abscess thickened, and indurated at the edge; often with a core in the middle. There are four species, though Dr. Good has numbered them as if one were omitted.

1. *Phyma hordeolum*, the sty: tumour seated in the verge of the eye-lid; granular, hard, reddish, sore to the touch; suppuration confined to the point. This is generally produced by indigestion. Plenck affirms that he knew a man who uniformly had a sty after drinking ardent spirit. He points out the following resemblance between a sty and a boil: "Est tuberculum inflammatorium, *parvo furunculo simile*, in margine palpebrarum." See SURGERY.

2. *Phyma farunculus*, the boil: tumour common to the surface; deep-red; hard, circumscribed, acutely tender to the touch; suppurating with a central core. See SURGERY.

3. *Phyma sycosis*: tumour excrescent, fleshy, fig-shaped, darkish-red, sprouting from the hairy part of the head or face; gregarious; often coalescing; discharge partial and sanious.

Dr. Bateman has described the Sycosis to consist of "an eruption of inflamed but not very hard tubercles, occurring on the bearded portion of the face and on the scalp, in adults, and usually clustering together in irregular patches." Some difference takes place in the appearance and progress of the eruption, when it is seated in the chin and in the scalp. Hence it is divided into two varieties.

α. *Sycosis barbæ*, (S. menti, Bateman.) The tumour hard, roundish, pea-sized; seated in the beard; commonly in clusters; occasionally confluent, and spreading from ear to ear; discharge small and gelatinous, beard matted. See Plate I. fig. 1.

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According

According to Dr. Bateman, in this complaint the tubercles arise first on the under-lip, or on the prominent part of the chin, in an irregularly-circular cluster; but this is speedily followed by other clusters, and by distinct tubercles, which appear in succession along the lower part of the cheeks up to the ears, and under the jaw towards the neck, as far as the beard grows. The tubercles are red and smooth, and of a conoidal form, and nearly equal to a pea in magnitude. Many of them continue in this condition for three or four weeks, or even longer, having attained their full size in seven or eight days; but others suppurate very slowly and partially, discharging a small quantity of thick matter, by which the hairs of the beard are matted together, so that shaving becomes impracticable from the tender and irregular surface of the skin. This condition of the face, rendered rugged by tubercles from both ears round to the point of the chin, together with the partial ulceration, and scabbing, and the matting together of the unshaven beard, occasions a considerable degree of deformity; and it is accompanied also with a very troublesome itching.

Though this complaint occurs, of course, chiefly in men, women are not altogether exempt from it. But in them it is commonly slight, since it is not exposed to the same irritation as when it occurs in the male sex. Its duration is very uncertain; being sometimes removed in a fortnight; sometimes the suppuration goes on for many weeks; and sometimes the suppurating tubercles heal, and again begin to discharge. Occasionally the disease disappears for a season, and then recurs.

6. *Sycosis capilli*, (*S. capillitii*, *Bateman*.) Tumour soft, unequal, clustering: seated in and about the hair of the head; discharge ichorous, copious, and fetid, from a fungous surface. See Plate I. fig. 2.

The *Sycosis capilli* is seated chiefly about the margin of the hairy scalp, in the occiput, or round the forehead, and temples, and near the external ear, which is also liable to be included in the eruption. The tubercles rise in clusters, which affect the circular form; they are softer, and more acuminate, than those on the chin; and they all pass into suppuration in the course of eight or ten days, becoming confluent, and producing an elevated, unequal, ulcerated surface, which often appears granulated, so as to afford some resemblance to the internal pulp of a fig. The ulceration, as Celsus states, is generally humid; for there is a considerable discharge of a thin ichorous fluid, which emits an unpleasant rancid odour.

Dr. Bateman informs us that "the *Sycosis*, under its first-mentioned form, may be distinguished from *Acne indurata*, by its seat being exclusively on the bearded part of the face; by the softer, more numerous, and clustered, tubercles; and by the ulceration which they tend to produce. And, under its second form, in which it is somewhat assimilated to the eruption of favous pustules, or *Porrigo favosa*, affecting the face and the borders of the capillitium, it may be discriminated by the tuberculated and elevated base of the suppurating tumours; not to mention the adult age of the patient, and the absence of contagion."

As to the treatment of *Sycosis*, when the tubercles are numerous, inflamed, and confluent, and especially when the suppuration is either beginning or considerably advanced, the most speedy benefit is derived from the application of poultices, at night, of linseed powder, bread and milk, or other simple ingredients. In the less severe forms, warm ablutions or fomentations may be substituted. When the inflammatory symptoms are reduced, and in cases where they are from the first moderate, the healing process is much promoted, and the discharge moderated and restrained, by the application of the unguentum hydrargyri nitrati, diluted with three or four parts of simple ointment, or by the ung. hydrarg. præcipitat. united with an equal portion of the zinc

ointment, or the cerate of acetate of lead. At the same time it is useful to prescribe antimonials, with alterative doses of mercury, followed by cinchona, or serpentaria, and the fixed alkalis; or such other measures as may be required to re-establish the functions of the chylopoietic viscera, which are almost always disordered in *Sycosis*.

4. *Phyma anthrax*, (*Erythema anthrax*, *Cullen*.) Carbuncle: tumour common to the surface; flat; firm; burning; penetrant; livid and vesicular; or crusty above, with a fordid and gangrenous core below; imperfectly suppurative. There are two varieties.

a. *Pruna*, the escar carbuncle: crust black; oozing an erosive ichor, or sanies.

6. *Terminthus*, the berry or fungus carbuncle. See the article SURGERY.

Genus IV. *Ionthus*, [Gr. a violet or purple eruption; from *ion*, purple; or from *oibos*, filth.] Tubercles in the face. Generic characters.—Unsuppurative tubercular tumour; stationary, and chiefly common to the face.

This genus (the *Acne* of Dr. Bateman) is characterised by an eruption of distinct, hard, inflamed, tubercles, which are sometimes permanent for a considerable length of time, and sometimes suppurate very slowly and partially. They usually appear on the face, especially on the forehead, temples, and chin, and sometimes also on the neck, shoulders, and upper part of the breast; but never descend to the lower parts of the trunk, or to the extremities. As the progress of each tubercle is slow, and they appear in succession, they are generally seen at the same time in the various stages of growth and decline; and, in the more violent cases, are intermixed likewise with the marks or vestiges of those which have subsided. There are two species.

1. *Ionthus varus*, the stone-pock: red, hard, pimply, distinct, gregarious; sore to the touch; sometimes oozing a little fluid at the tip. This species has two varieties.

a. *Simplex*, (*Acne indurata*, *Bateman*.) Broad-based, bright red, and solid. This variety is described as an eruption of small tubercles, which appear singly, and are not very numerous, nor accompanied by much inflammation, nor by any intermediate affection of the skin. When it has continued some time indeed, a little roughness of the face is produced, where the larger tubercles have disappeared, in consequence of a slight cracking or disposition to exfoliate in the new cuticle; but these marks are not permanent. Many of the tubercles do not proceed to suppuration; but gradually rise, become moderately inflamed, and again slowly subside in the course of eight or ten days, leaving a transient purplish-red mark behind. But others go on to a partial suppuration, the whole process of which occupies from a fortnight to three weeks. The tubercles are first felt in the skin, like a small hard seed, about the size of a pin's head, and enlarge for three or four days, when they begin to inflame: about the sixth or seventh day they attain their greatest magnitude, and are then prominent, red, smooth, and shining, and hard and painful to the touch. After two or three days more, a small speck of yellow matter appears on the apices of some of the tubercles; and, when these afterwards break, a thinner humour is secreted, which soon dries into a yellowish scab. The inflammation now gradually declines, the size and hardness of the tubercles diminish, and the small scab becomes loosened at the edges, and at length falls off about the third week. The individual tubercles, which rise and suppurate in succession, pass through a similar course.

This eruption recurs frequently, at short intervals, in some individuals, who have it partially; but in others, who are strongly predisposed to it, it is more extensive, and never wholly disappears, but is, at uncertain periods, more or less troublesome. It is generally worst after eating heartily, or drinking an unusual portion of wine, or after the occurrence of any other cause of indigestion; as well as after any inordinate excitement

of the cutaneous circulation from violent exercise in hot weather or in heated rooms, especially when followed by a copious draught of cold liquor. This disease occasionally puts on a much severer aspect. In the form to which the term *indurata* is more strictly applied by Bateman, hardness is a remarkable feature in the appearance of the tubercle, which is at the same time more permanent, and more apt to spread from the face to the neck and shoulders, than in the preceding form. The tubercles are occasionally acuminate, as if tending to immediate suppuration, being at the same time of a bright roseate hue; yet many of them continue in a hard and elevated state for a great length of time, without any disposition to suppurate. Others, however, pass on very slowly to suppuration, the matter not being completely formed in them for several weeks, and then only a small part of the tubercles are removed by that process. Sometimes two or three coalesce, forming a large irregular tubercle, which occasionally suppurates at the separate apices, and sometimes only at the largest. In whatever mode they proceed, their vivid hue gradually becomes more purple, or even livid; and their tenderness is then extreme. Slight crusts form upon the suppurating tubercles, which after some time fall off, leaving small scars surrounded by hard tumours of the same dark red colour; and these sometimes suppurate again at uncertain periods, and sometimes slowly subside and disappear, leaving a purple or livid discoloration, and occasionally a slight depression, which is long in wearing off.

The general treatment of this disorder will be conducted on the same principles as slight inflammatory complaints in all parts of the body, when these arise from internal irritation. The most frequent cause of this disease, as the sagacious Darwin remarked, is found in deranged action of the chylopoietic viscera. Dr. Bateman indeed does not seem to allow this; for he says that the patients of this complaint often enjoy good health, and that it is generally a local disease. But whoever considers the causes which, according to this author's account, aggravate *varus*, will have little hesitation in concluding that the same causes may often produce the complaint. According to the testimony of Dr. B. himself, the treatment of this complaint by repellent lotions often gives rise to vicarious disease in other parts; an occurrence which will never happen, we believe, if, previous to the use of those applications, we regulate by gentle purgative and abstinent diet the state of the stomach and bowels. The local applications to be used are weak stimuli of various kinds; as lotions of water with a small proportion of spirits of wine, or a few grains of oxymuriate of mercury, the strength of the latter being gradually increased (to a great degree when the tubercles are indurated) as the diseased part loses its inflammatory character.

6. *Punctatus*, the maggot-pimple: tipped with a black dot, discharging, on the pressure of the finger, a grub-like concretion of mucus. In other respects this is similar to the former variety. The indurated mucus may be extracted by the fingers, or by means of a small blunt curved forceps, and the little tumour treated as the first variety. In Plate II. fig. 1, we have given a representation of *Ionthus varus*; and at A are depicted a few of the black *punctæ* which give character to the second variety.

7. *Ionthus corymbifer*, (*Acne rosacea*, Bateman.) Rosy-drop, or whelk: confluent; corymbose; rosy mottled with purple; often disfiguring the nostrils with pendulous lobes; irritated by cordials or exposure to heat. See Plate II. fig. 2.

This complaint occurs from a greater intensity of the same cause that gives rise to the first species; being chiefly found in those that stimulate the mucous expansion of the stomach with spirits, and whose livers are deranged in consequence of the same habit. Its appearance differs in the following particulars from the prece-

ding species. In addition to an eruption of small suppurating tubercles, there is also a shining redness, and an irregular granulated appearance of the skin of that part of the face which is affected. The redness commonly appears first at the end of the nose, and afterwards spreads from both sides of the nose to the cheeks, the whole of which, however, it very seldom covers. In the commencement it is not uniformly vivid; but is paler in the morning, and readily increased to an intense red after dinner, or at any time if a glass of wine or spirits be taken, or the patient be heated by exercise, or by sitting near a fire. After some continuance in this state, the texture of the cuticle becomes gradually thickened, and its surface uneven or granulated, and variegated by reticulations of enlarged cutaneous veins, with smaller red lines stretching across the cheeks, and sometimes by the intermixture of small suppurating *vari*, or pimples, which successively arise on different parts of the face.

This species of *Ionthus* seldom occurs in early life, except where there is an hereditary predisposition to it; in general it does not appear before the age of forty; but it may be produced in any person by the constant immoderate use of wine and spirituous liquors. The greater part of the face, even the forehead and chin, are often affected in these cases; but the nose especially becomes tumid, and of a fiery red colour; and, in advanced life, it sometimes enlarges to an enormous size, the nostrils being distended and patulous, or the *alæ* fissured, as it were, and divided into several separate lobes. At that period of life too, the colour of the pimples becomes darker and more livid; and, if suppuration take place in any of them, they ulcerate unfavourably, and do not readily assume a healing disposition. In young persons, however, who are hereditarily predisposed to this complaint, irregular red patches not unfrequently appear in the face, which are often smooth and free from tubercles, and sometimes throw off slight exfoliations at intervals. These patches may be gradually extended, if great temperance both in food and drink be not observed, until the whole face assume a preternatural redness.

As this eruption is chiefly sympathetic of some derangement of the chylopoietic viscera, or of a peculiar irritability of the stomach, little advantage can be expected from local applications: and, in fact, the stimulants, which are beneficial under proper regulations, in the other forms of *Ionthus*, are generally prejudicial in this, and aggravate the complaint. We shall not enter into any particular directions for the treatment of this complaint. Since this is so obvious, the first object to be attained is to induce the patient to abstain from drinking, seldom an easy task; and, this being accomplished, an abstemious diet and mercurial alteratives will be the principal remedies to be depended on. Dr. Bateman says the symptoms may be sometimes palliated by the liquor potassæ, or other antacids, which seem also to have some influence in lessening inflammatory action in the skin. If the inflammation subsides, the gentlest restraints should be used externally to the patches of reticulated veins; such as very dilute spirituous or acetous lotions, with or without a small proportion of the acetate of lead, or simple ointments combined with alum, acetate of lead, &c. in small quantities.

Genus V. *Phlysis*, [from *φλυω*, to boil up, to bubble.] Whitlow. Generic characters—Ulcerative subcutaneous tumour; flat, tense, glabrous, diffused, hot, throbbing; at length fluctuating with an acrid ichor. There is but one species.

Phlysis paronychia: seated about the nails and ends of the fingers: pain acute and pricking; shooting up the hand. Three varieties.

α. *Cutanea*: the acrid effusion seated between the skin and parts immediately subjacent.

β. *Tendinis*: effusion seated between the tendons and the periosteum.

γ. *Periostrii*,

x for all this I agree with Dr.

γ. Perioftii, the malignant whitlow, or felon: effusion feated between the periofteum and the bone, which is often rendered carious.

Similar inflammations are occasionally to be found in the foles of the feet and palms of the hands; they break through the cuticle with difficulty from its thicknefs, and hence become diffufed, and feperate the cuticle from the fkin beneath. The bite or poifon of the Gordius aquaticus, or hair-worm, is faid to have a peculiar tendency to produce this affection.

Genus VI. *Erythema*, [Gr. from *ερυθος*, rednefs.] Inflammatory flufh, improperly called Eryfipelas. Generic characters—Red, glabrous, tumid, fulnefs of the integuments; difappearing on preffure; pain burning; inflammation ulcerative; terminating in cuticular fcales or veficles, occasionally in gangrene. There are fix fpecies.

1. *Erythema œdematofum*, œdematous inflammation: colour fcarlet; fpreading widely and deeply through the cellular membrane, which often imperfectly fuppurates, floughs, and becomes gangrenous.

2. *Erythema eryfipelatofum*, eryfipelatous inflammation: colour deepifh-red; fuperficial; with a determined edge; migrating in a ferpentine direktion; the part which has paffed through the action healing, as the part next attacked becomes affected.

3. *Erythema gangrænofum*, gangrenous inflammation: colour dufky-red; fuperficial; cuticle feparated from the cutis by a bloody ferum; the cutis, when denuded, exhibiting dark-brown fspots, difpofed to blifter and flough; occurring chiefly in the extremities.

These three fpecies are ufually to be found in debilitated or relaxed constitutions: the former two often appear as fequels of atonic fevers; the third is common to old age, and early infancy. For the treatment, fee the article SURGERY.

4. *Erythema veficulare*, fiery inflammation: colour pale-red; furface roughifh, and covered with crowding minute veficles, filled with an acrid, often a reddifh, fluid; progrefively trailing into the neighbouring found parts.

This is intended, as Dr. Good informs us, to delineate the *ignis facer* of the ancients, which has been feldom underftood, and never hitherto allotted a clear methodic pofition. The common error has been in making it an exanthem, or eruptive fever, an Eryfipelas or a Pefthis, or a diftinct difeafe approaching to the one or the other. There is no doubt that it has at times been an accompanying fymptom in Pefthis, and has confequently produced a variety in this fever which the reader will find noticed under the head Pefthis by the diftinguifhing term *erythematica*, of which nature was the plague of Athens, fo excellently defcribed by Thucydides and Lucretius. But the *ignis facer*, in its genuine and fimple ftate, inftead of being a typhous eruptive fever, has often very little fever of any kind, never perhaps more than fymptomatic fever; and by Celfus is defcribed as being beft cured by an ephemeral or other fever that may give increafed action to the fyftem. The varieties are,

α. *Benignum*: the rednefs and veficles advancing without a breach of the cuticle, as the part that has paffed through the action is healing.

β. *Corroſivum*: the veficles breaking in the part firft affected, and the eroſive fluid producing tracks of fanious ulceration as the rednefs advances.

These fubdivifions of *ignis facer* are taken from Celfus, and given, as nearly as may be, in his own words, to prevent all doubt. He defcribes it as a genus comprising two fpecies, of which the former has two varieties. "Dux fpecies funt. Alterum eft *ſubrubicundum*, aut *miſtum rubore atque pallore, exuſperatumque per puſtulas* (φλυκταινας) *continuas, quarum nulla alterâ major eft, ſed plurimæ perexiguæ.* In his ſemper fere *pus*, et ſæpe *rubor cum calore* eft." Then follow the two varieties as

deſcribed above: "α, *Serpitque id nonnunquam ſaneſcentē eo, quod primum vitiatum eſt; β, nonnunquam etiam exulcerato, ubi ruptis puſtulis* (φλυκταιναις) *ulcus continetur, humorque exit.*" He then paſſes on to deſcribe the ſecond ſpecies, which answers to the character and almoſt to the words of our third ſpecies, *Erythema gangrænoſum*. "Alterum, autem, in *ſummâ cutis exulceratione, ſed ſine altitudine*, latum, *ſublividum*, inæqualiter tamen; mediumque ſaneſcit, extremis procedentibus; ac ſæpe id, quod jam ſanum videbatur, iterum exulceratur: at circa, proxima cutis, quæ vitium receptura eſt, tumidior et durior eſt, coloremque habet ex rubro ſubnigrum. Atque hoc quoque malo—in *cruribus maxime.*" Lib. V. cap. xxviii. ſect. 4.

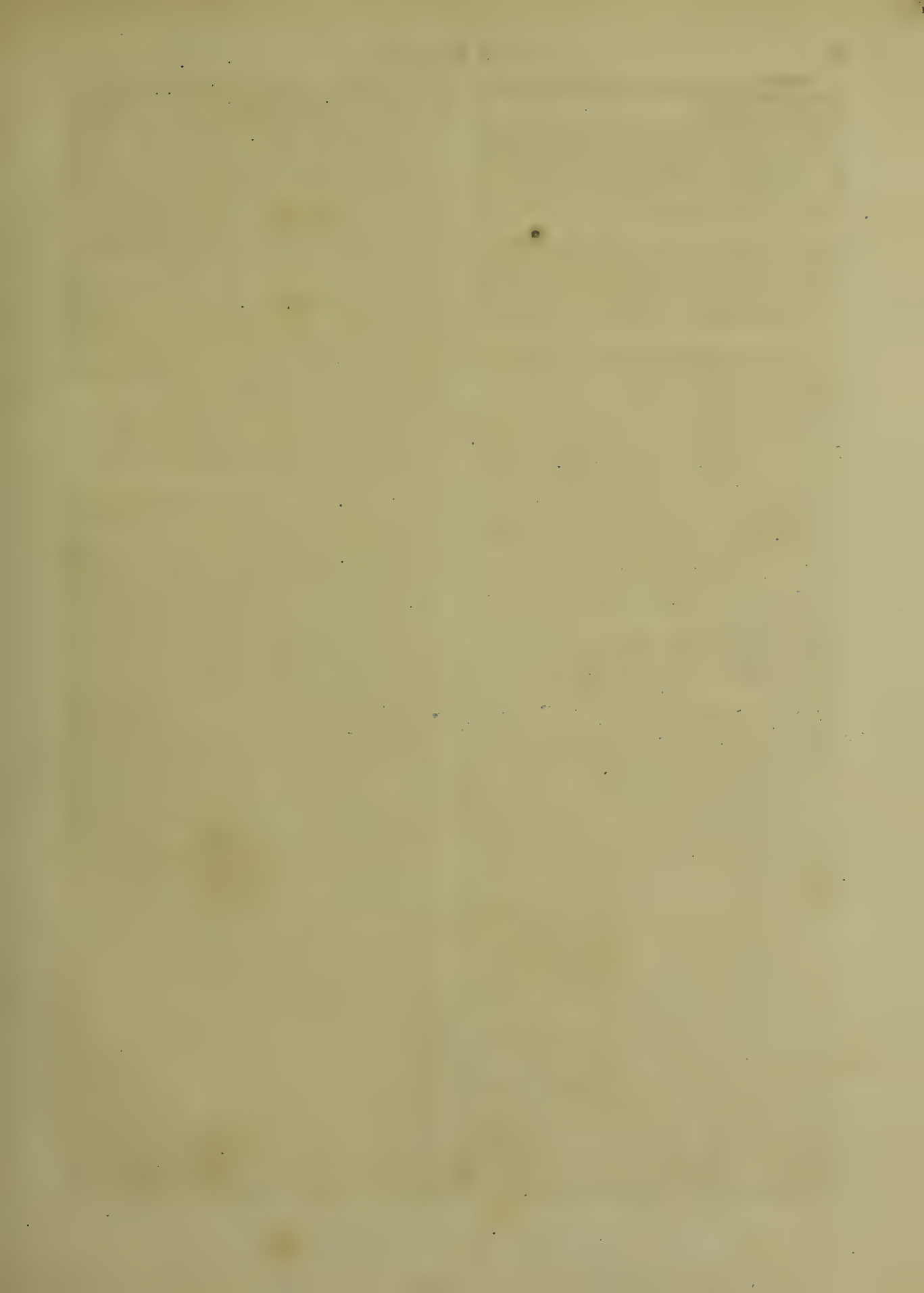
Dr. Good has ventured to tranſlate the *puſtula* of Celfus in the preſent inſtance φλυκταινας, veficles; firſt, becauſe he thus explains the term in ſect. 15 of the ſame chapter; and ſecondly, becauſe in the *ignis facer*, which, as we learn both from Thucydides and Lucretius, was a ſymptom in the plague of Athens, the former has given us this precise term. The following couplet is ſufficient from Lucretius. De Rer. Nat. vi. 1164.

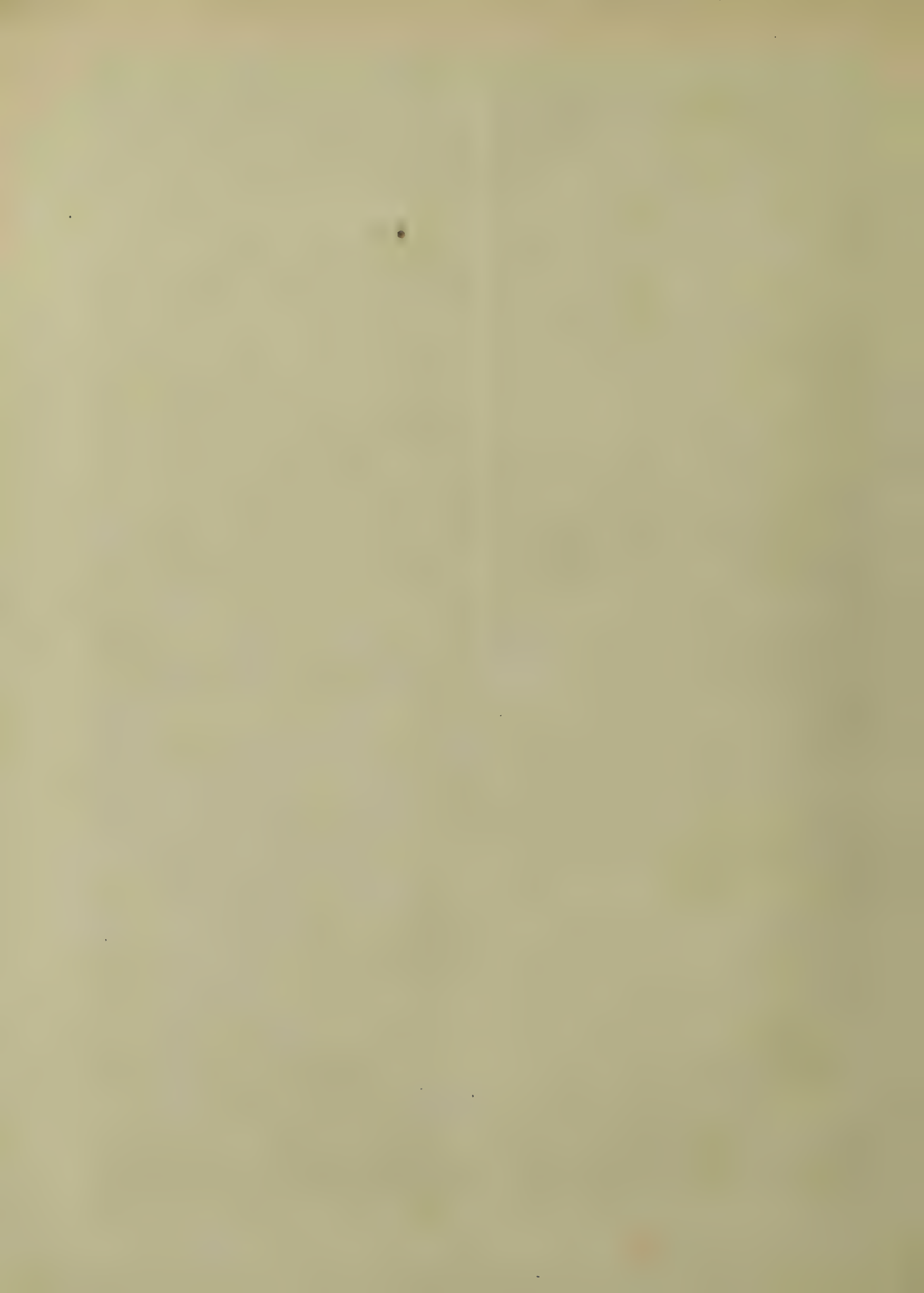
*Et ſimul, ulceribus quaſi inuſtis, omne rubere
Corpus, ut eſt, per membra ſacer quum diditur ignis.*

Wide ting'd with purple dye, and brandiſh'd o'er
With trails of cauftic ulcers, like the blaze
Strew'd by the holy fire.

In Thucydides the ſame ſymptoms are deſcribed; and in Seneca, who has cloſely copied from Lucretius, the phraſe *sacer ignis* is ſtill preſerved. See Œdip. 187.

The Eczema rubrum of Dr. Bateman ſeems to belong to this ſpecies, and may form a third variety. It is commonly denominated *Erythema mercuriale* or *hydrargyria*. This diſeaſe is preceded by a ſenſe of ſtiffnefs, burning heat, and itching, on the part where it commences, which is moſt frequently the upper and inner ſurface of the thighs, and about the ſcrotum in men; but ſometimes it appears firſt in the groins, axillæ, or in the bend of the arms, or about the wrifts and hands, or in the neck. Theſe ſenſations are ſoon followed by an appearance of rednefs, and the ſurface is ſomewhat rough to the touch. This, however, is not a ſimple efflorefcence; for, on examining it minutely between the light and the eye, or with a convex glaſs, the roughnefs is found to be occaſioned by innumerable minute and pellucid veficles, which have been miſtaken for *papulæ*. In two or three days, theſe veficles, if they are not ruptured, attain the ſize of a pin's head; and, the included ſerum then becoming ſomewhat opaque and milky, the character of the eruption is obvious. It ſoon extends itſelf over the body and limbs in ſucceſſive large patches; and is accompanied by a conſiderable ſwelling of the integuments, ſuch as is ſeen in ſmallpox and other eruptive fevers, and by great tendernefs of the ſkin, and much itching. When the veficles begin to loſe their transparency, they generally burſt, and diſcharge, from numerous points, a thin acrid fluid, which ſeems to irritate the ſurface over which it paſſes, and leaves it in a painful, inflamed, and excoriated, condition. The quantity of this ichorous diſcharge is very conſiderable; and it gradually becomes thicker and more adhesive, ſtiffening the linen which abſorbs it, and which thus becomes a new ſource of irritation; it emits alſo a very fetid odour. This proceſs takes place in the ſucceſſive patches of the eruption, until the whole ſurface of the body, from head to foot, is ſometimes in a ſtate of painful excoriation, with deep fiſſures in the bends of the joints, and in the folds of the ſkin of the trunk; and with partial ſcaly incruſtations, of a yellowiſh hue, produced by the drying of the humour, by which alſo the irritation is augmented. The extreme pain ariſing from the preſſure of the weight of the body upon an extenſive portion of ſuch a raw ſurface, is ſufficient to give riſe to an acceleration of the pulſe, and white tongue; but





but the functions of the stomach and of the sensorium commune are not evidently disturbed by this disease. The duration of this excoaration and discharge is uncertain and irregular: when only a small part of the body is affected, it may terminate in ten days; but, when the disorder has been universal, the patient seldom completely recovers in less than six weeks, and is often afflicted to the end of eight or ten weeks. By so severe an inflammation the whole epidermis is destroyed in its organization; and, when the discharge ceases, it lies loose, assuming a pale brown colour, which changes almost to black before it falls off in large flakes. As in other superficial inflammations, however, the new red cuticle that is left is liable to desquamate again, even to the third or fourth time, but in smaller branny scales, of a white colour; and a roughness sometimes remains for a considerable period, like a slight degree of Psoriasis. In some instances, not only the cuticle, but the hair and nails, are also observed to fall off; and the latter, when renewed, are incurved, thickened, and furrowed.

In some cases this disease is limited to a small space; and then the discharge is slight, and its whole duration short. Similar local attacks of it occur in irritable constitutions, especially in hot weather, affecting the hands and wrists, the neck and external ear, and other parts, but without any constitutional disorder. Successive crops of the vesicles arise in irregular patches, with a red blush around them, which produce partial incrustations, as the ichor that issues is dried: and by these vesications and desiccations of the matter the affection is kept up for some weeks.

The treatment of this species of Erythema may be comprised in few words; for it is principally palliative. But, although medicine may not possess the power of shortening the period of its duration; yet the omission of the palliative measures will allow an extreme aggravation of the sufferings of the patient to take place, and probably prolong it beyond its natural course, as well as contribute to wear out the vigour of his constitution. The misery and exhaustion, resulting from the excessively tender and irritated state of the skin, may be greatly alleviated by frequent ablution or fomentation with warm gruel, or strained bran and water; or by the frequent use of the warm bath, which has the advantage of cleansing the surface without occasioning any abrasion by friction. A constant application of poultices has produced considerable ease to the patient, when the affection was confined to the extremities. Where the cuticle has exfoliated, Mr. Pearson recommends the application of a mild cerate, consisting of litharge plaster, wax, and oil, spread thickly on linen rollers, and renewed twice a-day. With the same view of diminishing the irritation of the surface, the bed and body linen of the patient, which becomes hard and stiff as the discharge dries upon it, should be frequently changed. Every additional irritation from stimulating food and drink should be avoided; the bowels should be kept open by the administration of occasional laxatives; and opiates may be given for the purpose of soothing the sensations of the patient. The sulphuric acid is grateful and refreshing; and, in the decline of the swelling and discharge, it may be combined advantageously with the exhibition of *sarsaparilla*.

5. Erythema pernio, chilblain: colour crimson suffused with blue; obstinately itching; chiefly affecting the extremities during winter. Two varieties.

a. Simplex: the cuticle remaining unbroken.

6. Exulceratus; accompanied with ulceration.

Intense cold produces the same effect, in exciting inflammation, as intense heat. Hence chilblains are best treated on the same principles as burns or scalds. In the first variety, cold spirituous applications are to be used; and the patient should avoid the extremes and alternations of heat and cold; consequently should not put his feet near the fire on coming out of the cold. The second variety is to be treated by poultices. Terrible examples

of this chilblain occurred among the French foldiers on their retreat from Moscow. On this occasion Baron Larrey, in his circular to the French surgeons, speaking of the effects of intense cold, observes, that, in general, frost-bitten sores (*plaies de congelation*) present the same phenomena as burns. In both cases a gangrenous eschar, more or less extensive, is formed, the separation of which must be promoted by topical applications which excite the surrounding sound parts. The most simple and effectual dressing was unguentum de styrace, spread on linen or lint. Alcoholic embrocations and decoctions of cinchona counteracted the process employed by nature in the cure. The eschars separated, the wounds are to be considered as simple, and treated accordingly. When chilblains sphacelate, they are to be treated as gangrene in general.

6. Erythema intertrigo, erosion of the skin: colour bright red; cuticle eroded; the exposed cutis oozing a limpid and acrimonious fluid. This arises from peculiar acrimony in the matter of perspiration, or acrid substances intermixing with its natural secretion; it occurs mostly in children, in the folds or duplications of the skin, as the groins, armpits, and behind the ears. Tepid ablution, and certain absorbent powders well known to mothers and nurses, e.g. fuller's earth, comprehend all that is required for the cure of this erosion. The bowels should be opened if costiveness is present.

Genus VII. *Empresma*, [from *εμπρησσω*, I flame or burn within.] Internal Inflammations. Generic characters—Deranged function of a visceral organ, membranous or parenchymatous, with local pain; fever mostly a cauma; inflammation mostly adhesive.

Hitherto we have spoken only of those inflammations which, obvious to the sight and touch, cannot be mistaken for complaints of a different kind. But the genus upon which we are now entering presents a vast number of the most serious diseases which we are afflicted with; and which are difficult to recognise, not only from their hidden situation, not only from the similarity which the symptoms of each species hold to those of another, and from the occasional resemblance which they all bear to irritative or sympathetic disorders. It is in every case a matter of great moment to distinguish whether a disease be inflammatory or otherwise; since, this grand distinction once established, we know whether it is absolutely necessary to act decisively and at once, or whether we may be allowed to wait and watch the full development of the disease. We may rest more fully contented when we have made this distinction, because the first treatment of all internal inflammation is nearly similar. So strongly was this truth impressed on the mind of the accurate Celsus, that, before he discriminates any diseases by name, he marks certain symptoms or signs which require or authorize blood-letting, purging, and similar active measures. In urging the importance of this general distinction, we are by no means unconscious how necessary it often is to distinguish at an early period the precise situation of Phlogosis; and in many instances it is practicable to do so. But that it is not so in all is one of the most firmly established facts in medical science. Cases have occurred even in the brain, an organ above all others disposed to take on inflammation from irritation, which so closely imitated Phrenitis, that the most accurate practitioners have been deceived by it; yet, on dissection, no inflammatory action has been discovered. This circumstance is the more lamentable, because irritation and inflammatory disease require to be differently treated. It may be borne in mind, however, that the wrong treatment of irritation is seldom so fatal as the wrong treatment of inflammation.

The marks which distinguish inflammation from violent spasm are too obvious to be mistaken by the most superficial observer. In the present instance, therefore, we shall confine our diagnosis to those insidious approaches

of inflammation which simulate the actions in which suspension of the functions of a part takes place with some uneasy sensations, but without actual disease. The more obvious marks of inflammation are derived from its *approach*, which is generally slow, except indeed in violent cases; but in these no danger or mistake can arise; the other phenomena of inflammation being most strongly marked: by its *progression*, which is generally constant and unremitting, except indeed that the disease is greater towards evening: by the increased *sensibility* in the affected part, pressure being invariably found to aggravate inflammation, and common stimuli, which in health were unfelt, producing the same effect: by the derangement of the *functions* of the inflamed organ, particularly of its secreting function: by its effect on the *nervous system* of the brain, which is to induce in the first stage exaltation, in the second diminution or irregularity in the manifestations of the intellect by its effects on the nervous system, as shown in the *voice*, the patient expressing his distress by low or gentle moanings (except the brain be much affected), and not by those hasty, clamorous, and impatient, expressions, so common in those who suffer from diseases of irritation: by the sympathetic action it excites in the capillary system, inducing an increase of the general *temperature*: by its action on the heart and arteries, which is characterized by an increase in the fulness and frequency of the pulse, but more especially by its hardness, a condition which must be particularly attended to; (see our directions for ascertaining these particulars at p. 93, 4.) for, in all infectious inflammations, though the pulse be not fuller nor more frequent than common, it will invariably be found *harder*. Each of these marks of disturbance, taken separately, would fail in guiding us with accuracy in recognising inflammation: it is by the conjunction of several or all of them that we must be directed.

To prevent the frequent repetition of the same direction, we shall now give a general account of the therapeutical indications belonging to *Empresma*. Of the mode of action by which bleeding reduces inflammation, we have already spoken at p. 209, 10. and here we must repeat our conviction that much error arises from measuring the degree to which it is proper to carry this evacuation by the mere number of ounces. If we have clearly ascertained that the disease is inflammatory, and that the symptoms before us are kept up by inflammation, we must bleed till relief is obtained: we must be guided solely by the *effects* of our practice.

Next to the agency of bleeding in reducing inflammation are to be mentioned that class of medicines which (somewhat differently from the common acceptance of the term) we have named *SEDATIVES*. Of these the most established is the *Digitalis*. Many drugs are known however which possess the faculty of diminishing the contractility of the arteries to an eminent degree; but these, from their uncertainty or accidental ill effects, we forbear to notice, not doubting, however, that a few years will see the remedies in question in full use in the medical world; among which the Prussic acid will, under some form or preparation, probably hold a distinguished rank. It will be in vain attempted to exercise the operation of sedatives in intense Phlogoses, unless evacuations have been premised. Thus we see the Italians, as before reverted to, giving medicines of this class in the most excessive doses, without lowering the pulse, because they had neglected to bleed their patients freely before their exhibition: hence in acute diseases we should always use bleeding first. In the class of sedatives we should not forget nauseating medicines, though these act through the medium of the nerves. Antimony is the most common drug adapted to this purpose; it should be so managed as to procure nausea without vomiting, especially in cephalitis.

Stimulation is resorted to in inflammation two ways. In the first, which is constituted for the purposes of pro-

moting the secretions of the diseased part, we exhibit medicines which possess an exclusive action on it; as purgatives in bowel-complaints, expectorants in bronchitis, &c. The use however of these remedies is seldom admissible in the early stage of inflammation; and they are upon the whole very limited in their application. The next and more important mode of stimulation is instituted on the assumption that a loss of balance exists between inflamed parts and the rest of the system; and consists therefore in irritating sound structures for the purpose of relieving the diseased ones. Many of the medicines having this effect operate also by inducing secretion, and thereby relieving plethora. In this double manner do purgatives act.

We also may make use of our knowledge of *sympathy* to relieve inflammation. We throw cold water on the head in Cephalitis, because, on account of the sympathy between the external and internal parts of the head, by constricting the vessels of the skin we also constrict the vessels of the brain, the dilatation of which is the chief condition of the inflammation. The great difficulty consists in properly timing and discriminating the necessity for each of these measures. For one practitioner throws cold water on the head, and his patient recovers of Cephalitis: another blisters the scalp on one suffering under the same malady, and a like happy result ensues: yet these remedies are directly opposite, and the time or the attendant phenomena will explain why different treatment was necessary in diseases nominally the same. The genus *Empresma* contains seventeen species.

1. *Empresma cephalitis*, phrensy, or brain-fever: acute pain in the head; intolerance of light and sound; face flushed; eyes red; cauma; watchfulness and delirium.

For a long period medical practitioners have been struck with the remarkable anomalies which exist in the symptoms of cranial inflammation. It has been attempted to account for the principal appearances that inflammation exhibits by the supposition that symptoms would vary as the brain itself or its investing membranes were attacked. Many practical authors, on the other hand, have denied that the distinction in question can be made. Among these it may be sufficient to mention Cullen and Frank, and more recently the illustrious Portal; and indeed it must be confessed, that, till the present time, the distinctions were by no means clear, and even now it is well ascertained that in all severe membranous inflammation the invested parts will suffer the like disease. This is particularly remarkable in inflammation of the investments of the brain, in which few cases are seen without derangement of the intellect, an occurrence which can only be explained on the supposition that the brain is inflamed. The French say that it is only in inflammation of the brain that the faculties are deranged; but that, in inflammation of the membranes, they are merely *exalted*; yet will they say that the mere membrane can have any thing to do with the elevation of thought, except as the blood flows faster through the brain? and will they say that the excitement which follows drinking is membranous not cerebral excitement? certainly not.

In our introduction we have mentioned the important addition Drs. Martinet and Parent-Duchatelet had made to the progress of pathological science by their excellent descriptions of inflammation of the arachnoid membrane. (see p. 47.) This complaint is commonly called *arachnitis*, but more properly *arachnoiditis*, which term we shall use. It may not be amiss to observe, that the arachnoid is a delicate transparent membrane, closely in contact with the pia mater, and reflected over the internal surface of the dura mater. It forms a lining for all the ventricles of the cerebrum and cerebellum. It is constantly lubricated by a fine rosy exhalation; and is decidedly a serous membrane, performing the same functions in the head as the membranes investing the heart, lungs, and abdominal viscera, perform in their respective situations. Like them, it is insensible to touch or torture

torture when in a healthy state; and, like them, when inflamed, it acquires a high degree of morbid sensibility. To this we attribute the head-ache, more or less violent, which invariably attends on arachnoiditis. This membrane is inflamed by the same causes which inflame other serous membranes; and, like them, frequently throws out aqueous collections, or forms adhesions where the surfaces were before free; or, like those substances, it forces out a whitish or sero-albuminous fluid, sometimes forming layers of false membrane.

The primary and most frequent causes of the disease, are percussions of the head, exposure to the sun, organic lesions of the brain itself, apoplectic disposition, and depressing passions. Among the secondary causes, in point of frequency or importance, are metastases of different kinds, suppression of habitual discharges, the use of strong drinks, and the common causes of other internal plegmasiæ, as of pleuritis, gastritis, &c.

The first stage of arachnoiditis is marked by an increase of the sensibility, and by head-ache, one of the most constant characters of the disease. A tendency to sopor is sometimes manifested, especially when the disease is seated at the base of the brain. The stomach also is sympathetically affected with nausea or vomiting. A febrile movement is generally established in the system, varying according to the age of the subject, the sensibility of the constitution, and the degree of the inflammation. In some rare cases, especially of metastasis, coma sets in from the beginning, and all the symptoms of the third period or stage (described hereafter) commence at once, and are quickly followed by death. The duration of this first stage is usually from a few hours to three or four days.

The second stage or period, which is that of re-action, is accompanied with disturbance in the locomotive powers, corresponding with that of the brain itself. It is in this stage that we observe convulsions, delirium, restlessness, oscillations or commencing dilatation of the pupils, and other phenomena of cerebral inflammation. In this stage the pain in the head is less constant than in the first stage, the sensorium appearing less sensible of impressions, as well internal as external. This stage varies in duration, from two, three, or four, days, to one or even two weeks. It exhibits some difference in symptoms according to the principal seat of the disease. When the latter is at the base of the brain or in the ventricles, coma is almost essential, and is combined with convulsions, agitation, affection of the eyes, &c. whereas, if the arachnitis be on the convexity of the hemispheres, delirium is the early and regular and characteristic phenomenon.

The third stage is that of the shortest duration, varying from a few hours to three or four days, and rarely passing that period. This is the stage of collapse; the abolition of sense, loss of motive power, paralysis, local or general, and coma, being the characteristic symptoms. In this stage, however, the features of various cerebral affections are combined, and consequently all distinctions between arachnoiditis and inflammations of other parts of the brain confounded.

The collapse so characteristic of the third period or stage, and the excitement which distinguishes the second, have this peculiarity, that, while one part of the body shall present the phenomena of one of these stages, another part shall present those of the other. For example, in the face, we shall often see the muscles of the eye-lids paralytic, while those about the mouth are convulsed. It is principally when the arachnoiditis exists about the base of the brain, near the decussation of the optic nerves, that this medley of symptoms belonging to two different stages is observed. It is almost needless to say, that a return to health from any of these stages (this is rarely the case from the third) is marked by a diminution of intensity in the symptoms, and a

final cessation of them. At the same time it is often difficult to distinguish the transition from one stage into another, especially of the first into the second, and the second into the third. No single symptom can be depended on for this discrimination; the whole must be taken in connexion.

The symptom of the greatest importance in the invasion of this disease is head-ache. It is often intense, but varies considerably according to its seat. Cephalalgia then, occurring suddenly, and especially when violent, should always excite suspicion of arachnoiditis, whether it takes place in a person previously well, or labouring under some other disease.

As far as regards the expression of the countenance in arachnoiditis, a general character of surprise and stupor is observed, which it is impossible to describe, but which cannot easily be mistaken, after being once seen. Moreover the pupils are dilated or contracted, or alternately in each state. The globe of the eye presents a greater or less degree of redness in the conjunctiva; squinting on one or both sides; constant rolling of the organ, its reversion upwards, and finally paralysis of the upper eyelid. Few cases occur without some affection of the pupils.

The muscular actions of the face are sometimes deranged; and trismus is by no means a very unfrequent attendant on this complaint. It seldom occurs till after the first stage is past. Grinding of the teeth, and foaming at the mouth, are generally seen only among children; and in the second and third stages of the disease. Spasmodic or convulsive movements of the facial muscles are not very frequent, and never seen but in the advanced stages. Generally speaking, the face is coloured and animated in arachnoiditis; sometimes, however, it is pale and void of expression.

Delirium frequently affects adults, who are most disposed to arachnoiditis of the convexity of the brain. It is generally of the tranquil kind, or a muttering of half-articulated words between the teeth. It is seldom so intense but that the patient can be roused to answer distinctly at times. These remarks appertain to the first and second stages. In the third, there is generally an annihilation of the intellectual faculties. The commencement of delirium may, for the most part, be considered as the sign of transition from the first to the second stage, and forms the most characteristic feature of arachnoiditis of the convexity of the hemispheres. Where there is no delirium, there is generally either dulness, moroseness, irascibility, or preternatural excitement, and unusual exhilaration. In almost all cases, however, we see a marked diminution of the cerebral faculties, or an impossibility, as it were, of bringing them into action; so much so, that many patients can only be induced to utter monosyllables.

Somnolency is one of the most frequent of all the phenomena of arachnoiditis. When the disease pursues its ordinary course, this symptom does not appear till the end of the first or beginning of the second stage. In a very few cases it has been observed from the very commencement. Head-ache is almost inseparable from the first and part of the second stage of the disease. It is highly probable that it continues to the last, though not complained of by the patients, who are overwhelmed by the force of the disease, and incapable of distinguishing any particular symptom. They generally characterize the pain as heavy, numb, or shooting, usually occupying the whole, but sometimes only half, of the head. The apparent seat of the pain is not always the seat of the disease. Stupor, characterized by a kind of self abandonment, loss of all energy, and countenance of surprise, is common to every stage of the disease, but especially the two first. In a very few cases there has been obstinate pervigilium, instead of somnolency; and in a still fewer (showing that there is no rule without exception), the

the patients have retained their intellectual faculties until the last.

The muscular system exhibits various deviations from the healthy state, viz. general or local rigidity, or contraction, local or general palsy, local or general convulsions; to which we may add a third state, that of agitation. This last symptom is seldom seen except in the first and second stages. It is not of much importance as an aid in the diagnosis; but not so *convulsions*. These, with paralysis, are one of the most characteristic signs of arachnoiditis. General convulsions are most common in children; and are principally seen in the second and beginning of the third stage; more in the upper than in the lower extremities. Rigid contractions of the muscles are seen (in order of frequency) in those of the lower jaw, posterior of the neck, superior and inferior extremities. They belong to the second stage, and early part of the third; sometimes constant, but generally showing intervals of relaxation.

The temperature of the skin is generally elevated, and equally diffused over the whole surface of the body, being highest in the second stage of the disease, diminishing and greatly varying towards the termination of the third stage. The skin is generally dry during the first stage; in the second, sometimes moist, or even covered with an abundant perspiration, especially about the face. Drs. Martinet and Parent-Duchatelet take notice of a disagreeable odour which patients labouring under this disease exale about the end of the second stage, and which they can compare to nothing but the smell of mice. They assert that it always proved a very unfavourable symptom. We have met with this symptom in other complaints, where indeed no trace of arachnoiditis could be found.

The organic lesions discoverable on the *necrotomy* (a new and expressive word, as confining dissection to the dead subject) of patients who have died of arachnoiditis are—a simple blush or redness of the arachnoid membrane; thickening, and loss of transparency, in the said membrane; a purulent, sero-purulent, or sero-gelatinous, exudation on its surface; the formation of false membranes; and a serous effusion into the ventricles, between the laminae of the arachnoid, or into the cellular tissue which unites the said membrane to the pia mater.

The treatment of this complaint is similar to that of Cephalitis in general, as far as regards bleeding, purging, and the exhibition of sedatives. Bleeding, however, does not do so much good in the advanced stages of Arachnoiditis as in the advanced stages of Cephalitis. It should therefore be used early in this complaint: local bleeding is also highly beneficial: the French surgeons, in addition to these measures, order counter-irritants, by means of sinapisms and blisters to the feet and legs. A blister on the head has occasionally been productive of the most striking relief. General cold affusion is particularly recommended, as also the application of cold water to the head alone. Compression of the carotid arteries may also be used to repress the too great momentum of blood to the head. These remedies, according to Martinet and his colleague, will often deceive the practitioner; and upon the whole they give a lamentable account of the usual termination of this malady. The practice of the English in this complaint, though few of them make any distinction between Arachnitis and Cephalitis, is tolerably successful; and for this reason, that the system of bleeding in inflammation is carried to a greater extent in this country, and purging with drastic cathartics is more in vogue. But we should observe, that the arachnoiditis of this country is not often so violent as in France.

This account has been introduced here from a firm conviction in the mind of the writer of this article, that the division of cerebral and arachnoid inflammation has a foundation in nature. Before he read the work of Martinet, or even a review of it, his note-book con-

tained a history of certain anomalous cases of head-affectations which he by no means understood the nature of. Their history perfectly coincided, at least in all essential points, with the details given by the authors before mentioned. Since reading the work in question, and during the late hot weather, (June 1822,) several cases have occurred to him. It may be worth while to notice, that, in one of the best marked of these, the subject of which was a child four years old, after the most active bleeding and purging, and after the cold affusion of the head had been used with mere mitigation of the symptoms, at the end of the third day, the exhibition of a scruple of calomel combined with two grains of opium in four doses completely and most rapidly cured the patient. For excellent details of cases and dissections we refer to the work itself, or to a very good analysis of it in the eighth number of Johnson's Journal, which we have made some use of in our history of arachnoiditis.

In the above history of the symptoms of Arachnoiditis, the following are the most remarkable variations which occur from the symptoms of simple Cephalitis. The contracted state of the features, the extreme irritability of some of the muscles, sometimes the integrity of the reasoning powers, the easiness of respiration; the symptoms observing certain changes as the pain is situated on the top or base of the brain; the peculiar rotation, *gritty sensation*, or turning-up, of the eyes; and lastly, the disposition of the disease to affect the spine. We cannot help in this place remarking, that, in the work of Duchatelet and his colleague, the distinction of spinal and cerebral arachnitis is by no means so unfounded as some of our countrymen have supposed. A case occurred some time since to the writer of this article in which the attending practitioner cured a patient (as he thought) of Peritonitis by a small bleeding and a purge. The patient suddenly became affected with the primary symptoms of spinal arachnoiditis with little cerebral disturbance. The latter however increased; and the patient, without exhibiting any very violent derangement of the pulse or mental faculties, died in the course of ten days. On dissection of the head at the base of the cranium, the arachnoid tunic was found thickened, studded with depositions, and adherent to the surrounding parts. The same was still more remarkable in the small portion of the spine which was cut up through the foramen ovale. A slight effusion was found in the ventricles. A species of arachnoiditis very common in this country is *Hydrocephalus*, which see.

The following account of Cephalitis will probably require much alteration when the precise difference which characterises the inflammation of the investing or the invested parts of the cranium shall be known.

Cephalitis often makes its attack with a sense of fullness in the head, flushing of the countenance, and redness of the eyes; the pulse being full, but in other respects natural. As these symptoms increase, the patient becomes restless; his sleep is disturbed, or wholly forsakes him. Sometimes it comes on with tremors of the limbs, and intolerable pains of the hands, feet, and legs; sometimes with stupor and rigidity of the whole body; and sometimes with anxiety, and a sense of tension in the breast, which is often accompanied with palpitation of the heart. Sometimes, again, the stomach is affected; and nausea, and a painful sense of weight in that viscus, sometimes heart-burn and vomiting, are among the earliest symptoms. The pain in the head soon becomes considerable, and sometimes very acute. The seat of it is various: it generally seems to occupy the whole head; it is deep-seated and ill defined; and, in other cases, it is felt principally in the forehead or occiput. The redness of the face and eyes generally increases with the pain, and there is often a sense of heat and throbbing in the head, the countenance acquiring a peculiar fierceness. These symptoms, for the most part, do not last long before the patient begins to talk incoherently, and to show other

other marks of delirium: sometimes, however, delirium does not come on till the fifth, sixth, or seventh, day. It gradually increases till it often arrives at a state of phrenitis. The face becomes turgid, the eyes stare, and seem as if starting from their sockets; tears, and (according to some) even blood, flowing from them; and the patient sometimes resembles a furious maniac, from whom he is principally distinguished by the shorter duration of his complaint.

We should, *a priori*, expect in phrenitis considerable derangement in the different organs of sense, which so immediately depend upon the state of the brain; and such is the fact. The eyes are incapable of bearing the light; and false vision, particularly that termed *muscæ volitantes*, or floating motes and flashes of light seeming to dart before the eyes, are frequent symptoms. The hearing is often so acute, that the least noise is intolerable: sometimes, on the other hand, the patient becomes deaf; and it has been even observed, that the deafness and morbid acuteness of hearing sometimes alternate. Affections of the smell, taste, and touch, are less observable.

The respiration is generally deep and slow, sometimes difficult, now and then interrupted with hiccup, seldom humid and frequent, which last is a very unfavourable symptom. The deglutition is often difficult, sometimes convulsive. The liver is often affected; and complete jaundice, the urine and skin being tinged yellow, sometimes supervenes. Instead of a superabundance of bile, however, there is sometimes a deficiency of it, which affords a bad prognosis. The fæces being of a white colour, and a black cloud in the urine, have been regarded as fatal symptoms. The black cloud in the urine is owing to an admixture of blood; when unmixed with blood, the urine is generally pale.

Among the most unfavourable symptoms of cephalitis the following may be enumerated; namely, tremors of the joints, convulsions of the muscles of the face, grinding of the teeth, sudden changes of the colour of the face from florid to pale, involuntary tears, a mucous discharge from the nose, the urine being of a dark-red colour, or yellow, or black, or covered with a pellicle; the fæces being either bilious or white, and very fetid; profuse sweat of the head, neck, and shoulders; paralysis of the tongue, general convulsions, much derangement of the internal functions, and the superintention of the symptoms of other visceral inflammations, particularly of peripneumony. If the delirium changes to coma, and the pulse at the same time becomes weak and the deglutition difficult, the approach of death may be generally expected.

With respect to the causes of cephalitis, we have already observed that it is a rare disease in our temperate climate, but is more frequently observed in warm latitudes. The predisposition seems to consist in the irritability of youth and of the sanguine temperament, as well as in a passionate temper of mind. The exciting causes are such circumstances, internal and external, as tend to produce an accumulation of blood in the head; among which are the direct influence of a vertical sun in tropical climates, or long exposure to it in hot weather in more moderate heats, especially under great bodily exertions; violent fits of anger; intoxication; concussion, fracture of the skull, or other mechanical violence; long and intense exertion of the mind; certain narcotic poisons, miasmata, and perhaps contagion.

The cure of cephalitis must be conducted upon the same general principles as that of other acute visceral inflammations; and, from the particular importance of the organ inflamed, the antiphlogistic and evacuant plan must be pursued with the utmost vigour and expedition. Blood-letting is to be considered as the principal dependence of the practitioner, and the more early it is employed, the more efficacious in general it will prove. It fortunately happens, that in this complaint, the advantages of general and local blood-letting may be combined;

inasmuch as a large quantity of blood can usually be produced from the vessels immediately connected with the inflamed organ. When this advantage can be obtained, it should never be overlooked. It is advisable, therefore, to open the temporal artery, or the jugular vein, and to take a large quantity of blood, according to the violence of the symptoms, and to the age and strength of the patient. The blood-letting should be carried to the extent of producing syncope or fainting; and, when that effect follows, the relief is more often complete.

We need pay very little attention to the *admeasured* quantity of blood we take. We must bleed till the violence of the delirium is much abated, and till the pulse is materially lowered. The effects of the blood-letting, in diminishing the morbid determination of blood to the head, should be seconded by all other means in our power. The application of cold to the scalp, such as washing it, after shaving, with cold water, vinegar and water, or spirits, is often exceedingly beneficial. To assist in lessening the flow of blood to the head, the patient should be kept as near the erect posture as can be borne. At the same time he must be kept in bed, because the muscular exertion required to sit or stand accelerates the pulse; but the head and chest must be supported by pillows, or by other contrivances. And at this time, every irritation, especially those of light and noise, of which the inflamed sensorium becomes peculiarly susceptible, should be carefully withdrawn.

When the action of the heart is somewhat diminished, and the brain still continues oppressed, we shall find great benefit from blistering the lower extremities; but this should not be done on the first invasion of the malady. In addition to these direct means of diminishing the inflammatory action in the head, the indirect effect, which is produced by copious evacuations from the bowels, obtained by the use of *purgatives*, is of great importance, and should be carefully attended to. Even syncope itself has been produced by profuse evacuations from the intestines, which implies the complete influence over the circulation in the brain, which such operations produce. The free use of elaterium, scammony, gamboge, &c. therefore, should be resorted to in all cases of phrenitis; and, if a spontaneous diarrhoea should supervene, the practitioner will be careful not to check it. As in all other cases of inflammatory fever, every external source of excitement should be carefully excluded; the apartment should be cool and well ventilated; the bed-clothes light; the drink aqueous, cold, and acidulated.

It seems scarcely necessary to add, that nauseating doses of antimony, and the frequent exhibition of infusion of digitalis, are very appropriate auxiliaries to the treatment of Cephalitis.

2. *Empresma otitis*, (*Otalgia*, Cullen.) Ear-ache: severe pain in the ear; tenderness upon pressure; deafness or confusion of sounds. This complaint is accompanied by a sense of weight or tension in the internal ear, with some slight degree of fever. The treatment is the same as *Phlegmon auris*, (which see p. 230.) except that, when it is accompanied with much fever, we should bleed, lest the violence of the inflammation should disorganize the ear. Otitis is often a consequence of inflammation affecting the throat and eustachian tube; in which case we must use measures which might be considered somewhat active as compared with the small extent of the disease, that we may prevent the closure of the eustachian tube; an accident productive of serious inconvenience.

3. *Empresma parotidis*, (*Cynanche parotidea*, Cull. Branks, *Scottice*. Mumps, *Anglice*.) Painful unsuppurative tumour of the parotid glands, often extending to the maxillary; conspicuous externally; often accompanied with swelling of the testes in males, and of the mammae in females. This complaint, which is said to have proved both epidemic and contagious, comes on with the usual symptoms of fever, which are soon after attended with a considerable tumour of the external

fauces and neck. This appears first as a glandular moveable tumour at the corner of the lower jaw; but the swelling soon becomes uniformly diffused over a great part of the neck, sometimes on one side only, but more commonly on both. The swelling continues to increase till the fourth day; but, from that period it declines, and in a few days more passes off entirely. As the swelling of the fauces recedes, some tumour affects the testicles in the male sex, or the breasts in the female. These tumours are sometimes large, hard, and somewhat painful; but, in this climate, are seldom either very painful or of long continuance. The fever attending this disease is commonly slight, and recedes with the swelling of the fauces; but sometimes, when the swelling of the testicle does not succeed to that of the fauces, or when the one or the other has been suddenly repressed, the fever becomes more considerable, is often attended with delirium, and has sometimes proved fatal. As this disease commonly runs its course without either dangerous or troublesome symptoms, so it hardly requires any remedies. An antiphlogistic regimen, and avoiding cold, are all that will be commonly necessary. But when, upon the receding of the swelling of the testicles in males, or of the breasts in females, the fever comes to be considerable and threatens an affection of the brain, it will be proper, by warm fomentations, to bring back the swelling; and, by vomiting, bleeding, or blistering, to obviate the consequences of its abscence.

4. *Empresina paristhmitis*, (Cynanche, *Cull.* Angina, *Aust. Lat.*) Squinancy, or quinsy. Redness and swelling of the fauces with painful and impeded deglutition. This species contains three varieties.

a. *P. tonsillaris*, or common quinsy. It is an inflammation of the mucous membrane lining the throat, and affecting especially the tonsils, and spreading from thence along the velum and uvula. The disease is marked by a redness of the parts, accompanied by swelling, which is sometimes considerable, so as to render the act of swallowing painful and difficult, or even to impede it almost entirely. There is also a troublesome clamminess of the mouth and throat, with a frequent but difficult excretion of mucus; there is often a pain shooting into the ear: the voice is altered, and articulation rendered indistinct. A degree of fever is generally present. This kind of quinsy is not contagious. It terminates frequently by resolution, sometimes by suppuration, but hardly ever by gangrene. The progress of the inflammation to suppuration, is sometimes, indeed, very rapid; at other times there are several small abscesses, which break one after another, and the disease is tedious. Occasionally the tonsils become enlarged and hard after this inflammation, and remain so for years. When a large imposthume breaks, there is generally sudden relief from the pain, difficulty of breathing, swallowing, and speaking; although often no matter is thrown up, but passes down the oesophagus.

The disease is commonly traced to exposure to cold. It affects the young and sanguine, and is very liable to return, in some constitutions, upon the application of cold to any part of the body, so as to become almost habitual. It occurs, especially in spring and autumn, when vicissitudes of heat and cold frequently take place. The inflammation and swelling often begin most violently in one tonsil, and afterwards, abating in that, increase in the other. The remedies for inflammation, and the antiphlogistic regimen, are to be employed for the cure of this complaint. It is greatly aggravated by heating diet and stimulating medicines. General blood-letting is seldom necessary; but leeches to the neck and external fauces are very useful. Blisters, when early applied to the same parts, are also highly beneficial, and have often had the effect of curing by resolution a violent inflammation of the throat. When suppuration is begun, they can be of little use. Purgatives, repeated occasionally, are of essential benefit. The inflammation is often relieved by

topical refrigerants, particularly acids; hence the use of gargles containing vinegar, lemon-juice, or the mineral acids, and rendered palatable by means of honey or syrup. These acids moreover coagulate the mucus which adheres about the parts, and cleanse the passages. In many cases, however, no application has afforded more relief than the vapour of warm water received into the fauces by means of Mudge's inhaler.

β. *P. maligna*: crimson redness of the mucous membrane of the fauces and tonsils; ulcerations covered with mucous and spreading sloughs, of an ash or whitish hue; fever a typhus. This disease is of great danger and importance. We give the following account of its nature on the authority of Dr. Parr. It attacks like a slight inflammatory sore throat, though sometimes only a languor insidiously creeps on, with a little difficulty of swallowing; and, in the worst cases, even this is absent. The strength, however, rapidly sinks, the features fall, a ghastly paleness comes on, and death quickly follows. In slighter kinds, the course is not very different from that of the inflammatory species, though seemingly slight, with alternate chills and heats, pain in the head, &c. till the debility appears, when every other bad symptom immediately follows. Every sore throat should, therefore, be carefully examined.

In the most active inflammations of the throat, white specks will sometimes appear on the velum pendulum or tonsils. If the inflammation is florid, the constitution robust, and the pulse firm, these spots may be disregarded. On the contrary, in some instances of the most malignant kind, no sloughs can be observed. The distinction must be taken from the colour of the inflammation. In the true malignant sore throat, the colour approaches rather to the crimson and the pink than the red; and sometimes a shade of brown, not far distant from the cinnamon, is mixed. The pain in swallowing is slight in proportion to the degree of inflammation; languor, listlessness, and indifference, are very conspicuous; and the features display the same want of fulness and tone: the eyes are red and watery. At this time the pulse will be sometimes apparently strong, but a slight attention shows that the strength of the stroke is apparent only: it throbs with a kind of convulsive weakness, rather than beats with a steady firmness. The tongue grows brown, the breath offensive; and delirium, at night, comes on; by day, a wandering is only observable. When there are sloughs on the throat, the edges are of a dark pink red; they are observed to cover, and sometimes they conceal, a considerable loss of substance: they enlarge, become deeper, and the edges black. An ichor, or a thin acrid matter, is discharged from the nose or ears; the stools are thin and highly offensive. The fever is said to remit in the morning, but the remission is inconsiderable, and will never assist in the distinction, though it will sometimes lead to an insidious security. Sometimes, from the beginning, exanthemata appear; and the putrid sore throat is frequently, if not constantly, an attendant on Scarlatina: these soon assume a darker hue, and appear livid. The breath in the earlier periods is not affected, but a wheezing noise supervenes if neglected; and this, in the worst kinds, is succeeded by a shrill barking sound. It evidently arises from the erysipelatous inflammation extending to the larynx, and is generally a fatal symptom. The eruptions have been erroneously described as favourable and critical. In a disease which runs its course generally in less than five, always in seven days, no prognostic is to be depended on but a more florid appearance in the throat, and a more healthy aspect of the edges of the sores.

The disease is epidemic, and attacks the active and robust as well as the infirm. The treatment must in its early stages be strictly antiphlogistic; but it is said that, when the sloughs are formed, such measures are injurious. It seems to us, however, that in this respect we should be guided by the state of the pulse, &c. rather than adopt a line

a line of practice founded on the name of the disease. In fact, as we shall show when speaking of Gangrene in general, we must sometimes stimulate by bark and wine, and sometimes act the reverse by bleeding and purgatives, when we want to produce the expulsion of sloughs. Towards the latter end of the malady, when stimulation is required, we certainly meet with much success by following the practice thus detailed by Parr. After laxatives, the bark is to be given in active doses, with aromatics. Half a dram of the bark, with ten grains of aromatic spices, should be exhibited every two hours. If it seems to produce strictures on the skin, and rigour, five or six grains of camphor, and three or four of James's powder, combined with a little opium, should be added to each dose. These may be washed down with a strong decoction of bark, sharply acidulated with either of the mineral acids. Dr. Parr however remarks, that in this disease the bark seldom disagrees. The action of these remedies is greatly assisted by diet and gargles. Port-wine should be given freely; it should indeed enter into every part of the food, and be drunk alone, cold. Even sleep is less necessary than bark and port-wine; and, should it continue above three hours, the patient must be awakened, for the loss of time cannot be regained. The quantity of the medicine and the wine must be regulated by the effect. If we gain nothing in the first thirty-six hours, we may depend on a fatal event: if we lose ground in twenty-four, our hopes will be inconsiderable. We have known women unaccustomed to wine drink two bottles within twenty-four hours, for more than a fortnight. The gargles should be of a strong decoction of bark, very sharply acidulated with mineral acids or with the strongest Cayenne vinegar, or some Cayenne in substance should be added; and they should be frequently used, or, as the patient is languid, injected with a syringe. Pepper-corns constantly bitten, and the saliva swallowed, we have often found highly useful.

"These are the appearances, and such the practice, in the more violent attacks of the complaint; and we have never seen an instance of it, when taken early and treated in this manner, in a constitution moderately strong, proving fatal. The same plan, less actively pursued, is adapted to the milder kinds. But even the mildest should not be treated with indifference."

γ. P. pharyngea: redness florid, and especially at the lower part of the fauces; deglutition extremely difficult and painful; fever a cauma. This appears to be the same disease as the first variety, except that it is seated lower down in the throat.

5. Empresma bronchitis, (Cynanche trachealis, Cull.) Croup. Breathing sonorous and suffocative, voice harsh; ringing cough; fever a cauma. The term *bronchitis* is by Dr. Good confined to that peculiar and violent inflammation which is most appropriately termed by medical men in general *laryngitis*, as the latter term expresses the seat of the affection much better than bronchitis; and, as bronchitis is now properly used to designate those complaints which will be detailed under the genus Catarrh, we shall use the term *laryngitis* in the following description.

Laryngitis, then, is an inflammation of the superior part of the trachea or larynx, to which parts, however, it is seldom confined, but extends downwards through the ramifications of the bronchiæ. It affects persons of all ages, but is most formidable when it occurs to children, in whom it is said, from the narrowness of the aerial aperture, the internal thickening of the parietes of the tube soon produces suffocation. It seems however, from the firmness of the coagulum thrown out, that the inflammation in croup is of the most excessive kind, so that death might be accounted for independently of the smallness of the glottis.

The complaint sometimes runs its course in twenty-four, thirty-six, or forty-eight, hours; more commonly it continues a few days. Occasionally the peculiar noise

which is the pathognomonic sign of croup, attends on slight inflammations of the bronchiæ and larynx, but the complaint is then of a somewhat prolonged duration.

Laryngitis is often a consequence of the spreading of true bronchial inflammation; and sometimes the one alternates with the other. The croup generally begins with a short dry cough, wheezing, and other catarrhal symptoms. Soon the wheezing becomes more observable, the cough more troublesome, and marked by a peculiar shrill sound; the respiration is performed with a wheezing or croaking noise, and at length grows very distressing and laborious. At the beginning, or in slighter cases, the sound of inspiration resembled the passing of air through a piece of muslin; afterwards it was as if the noise came from a brazen tube. The cough was attended with a peculiar shrill sound, even at an early period of the disease, as well as the voice, where there was not a perfect hoarseness. Dr. Home describes it "*vox instar cantus galli*." It has been compared to the noise which a fowl makes when caught in the hand. This peculiarity, however, is not easily expressed by words, but a knowledge of it is readily acquired by observation.

By the end of the second, or on the third day, sometimes sooner, symptoms of affection of the system take place, as white tongue, thirst, increased heat, and frequent pulse: and the disease advances rapidly, not merely from violent general affection, but from the influence which it has upon the organs of respiration; the difficulty of breathing becoming now very distressing, the countenance being often flushed, and great inquietude and a continual inclination to change from place to place supervening. The child at the same time eagerly puts its fingers into its mouth, as if to pull away something which sticks in the passage. All the symptoms are increased during the night, throughout the disease.

A change now takes place; and, the inflammation terminating in effusion, the passage of the air becomes obstructed by viscid matter in the trachea, some of which is occasionally thrown up by coughing or retching. Occasionally also, portions of a film or membrane, of a whitish colour, are thrown up by the same painful exertions; and the efforts made to dislodge it are often so distressing, that the child appears to be almost in a state of strangulation. This is succeeded by an abatement of all the symptoms, until a fresh quantity of the same substance is formed, when the distress recurs as before. In many cases, the difficulty of breathing and appearance of suffocation are increased by paroxysms, so as to occasion extreme anxiety and inquietude. And in other cases the disease, after continuing some time, appears suddenly alleviated: the breathing is free; cheerfulness, appetite, and a disposition to amusement, take place. But a change for the worse comes on as suddenly, and death ensues; the livid and swelled face, and convulsive struggles, giving the little patient every appearance of one actually strangled. When the internal fauces are viewed, as Dr. Cullen has observed, they are sometimes without any appearance of inflammation; but frequently a redness and swelling appear. But it is commonly remarked that most of the cases which occur in the winter are attended with inflammation and swelling of the tonsils, uvula, and velum pendulum palati; and frequently large films of a white substance are formed on the tonsils.

Croup most commonly attacks children during the three first years after weaning. It rarely occurs before three months, or after ten years. It is often insidious in its approach; the child having only a slight cough or hoarseness, with little fever or ill feeling.

The treatment of croup is that of inflammation in its most acute and violent form, and in a situation where its continuance threatens speedy death. On this account, the inflammation must be subdued at all risks; and no fear of the consequences should arrest the vigour of the practitioner. A very large general bleeding, followed by

by the application of a great number of leeches to the edges of the lower jaw and to the sides of the neck, carefully avoiding the trachea, are the first means to be used. The knowledge of the powerful efficacy which mercury possesses of checking in some cases the deposition of coagulating lymph (though we cannot explain its *modus operandi*), furnishes us with another remedy of scarcely less importance. Calomel may be given in doses of four or five grains every hour, combined with just so much opium as will prevent it from passing off by the bowels. These doses are applied to children of three or four years of age; they may be greatly increased when required. Along with these measures the common means of counter-irritation may be advantageously used, as for instance the hot-bath and blistering remote parts. Blisters on the neck seem to us to be attended with very bad effects in the early period of the disease.

When suffocation is threatened, or perhaps in some remarkable cases after it has occurred, we may perform the operation of tracheotomy.

6. *Empyema pneumonitis*, (*Pneumonia peripneumonia*, *Cull.*) *Peripneumony*, or inflammation of the lungs: obtuse pain in the chest; constant difficulty of respiration, alleviated by an erect position; tumid purple face or lips; cough, generally moist, often bloody; pulse usually soft. Dr. Good makes three varieties of *Pneumonitis*.

a. *Pn. vera*: the fever a *cauma*; pain severe, little expectoration in the beginning.

b. *Pn. maligna*: fever a *synochus* or *typhus*. The debility so extreme from an early stage of the disease, that the pulse ceases on the pressure of the finger; and the vascular action is too weak to accomplish expectoration. Often epidemic.

γ. *Pn. notha*: great secretion and expectoration, with a mild *cauma*. Probably in many instances a catarrhal affection: chiefly occurring in advanced life, or in those who have weakened their constitutions by excesses.

We shall treat the first two varieties together, as the latter appears to be merely a consequence of the former, and to stand to it in the same relation as *typhus* does to inflammatory fever; i. e. merely as the effect of previous inflammatory action. The third variety, which is properly *bronchitis*, is referred to *Catarrhus*.

Inflammation of the parenchyma of the lungs, to which for the present we confine our attention, is seldom a solitary affection, the pleura being in general affected along with it: and it is occasionally accompanied with *catarrhus*.

Pneumonitis comes on with an obtuse pain in the chest or side, great difficulty of breathing, particularly in a recumbent position, or when lying on the side affected, together with a cough, dryness of the skin, heat, anxiety, and thirst. At the first commencement of the disease the pulse is usually full, strong, hard, and frequent; but in a more advanced stage it is commonly weak, soft, and often irregular. In the beginning, the cough is frequently dry and without expectoration; but in some cases it is moist even from the first, and the matter spit up is various both in colour and consistence, and is often streaked with blood. The countenance is generally flushed; the nostrils are much dilated before each respiration; the patient usually breathes with the diaphragm principally, but not so exclusively as in *Pleuritis*. In the more severe *Pneumonites*, the difficulty of breathing, at all times the most dangerous symptom, becomes increased, and is often attended with more or less general, deep, livid, or even dark, suffusion of the countenance, with some degree of tumidity, but little heat. There is also great anxiety in the expression. The nostrils are widely dilated, and sharply depressed above their lobes, just before and during inspiration. The patient is often obliged to sit up in bed. There are vertigo and pain of the head. The respiration is attended with great labour, oppression, and generally with a rattling noise: on inspiration, the

bottom part of the sternum is often drawn forcibly and quickly towards the spine, the upper ribs raised, and the abdomen protruded; on expiration, these movements are reversed. Sometimes the *pomum adam* descends on inspiration; sometimes the shoulders are much elevated. Speaking is very difficult. The cough occurs in painful oppressive fits, and raises various expectoration; this is however generally copious and mucous, sometimes tinged with blood. The hands are cool, and livid, and the pulse frequent.

If the actual inflammation or engorgement of the lungs does not cause death, a favourable termination is effected by the occurrence of copious secretion, both from the nervous lining and the serous investment of the lungs; though it must be confessed that inflammation of the lungs often subsides by mere resolution, where bleeding is actually employed. And moreover the establishment of each of these secretions, when in excess, produces other and fatal diseases, as *empyema* and chronic *catarrh*. Another termination of *Pneumonitis*, is supuration of its substance, or *Apostema vomica*.

Before we speak of the treatment of *pneumonitis*, we shall detail the symptoms of the next species.

7. *Empyema pleuritis*, or *pleurisy*: acute pain in the chest; increased during inspiration; difficulty of lying on one side; hard pulse; short distressing cough. Dr. Good gives three varieties.

a. *Pl. vera*: fever a *cauma*; pain felt chiefly on one side. The inflammation, in this case, commences in that side of the membrane which lines the ribs; though often communicated to the contiguous portion which covers the lungs.

b. *Pl. mediastina*: heavy pain in the middle of the sternum, descending towards its ensiform cartilage; with great anxiety.

γ. *Pl. diaphragmatica*: painful constriction around the *præcordia*; small, quick, and laborious, breathing.

Pleurisy comes on with an acute pain in the side, which is much increased by making a full inspiration, and is accompanied by flushing in the face, increased heat over the whole body, rigors, difficulty of lying on the side affected, together with a cough and nausea; and the pulse is hard, strong, and frequent, and vibrates under the finger when pressed upon, not unlike the tense string of a musical instrument. The blood exhibits the thick sily or buffy coat on its surface in a high degree.

We see in this complaint an expression of suffering on the countenance, and a state of general contraction of the features. The nostrils are acute and drawn a little upwards, and are surrounded by a ring of a pearly white. They are moved rapidly by the alternate acts of respiration, being dilated quickly just before each inspiration. There is often a circumscribed or partial flush of the cheeks, which generally terminates abruptly, especially towards the nose. The patient cannot, in general, lie on the pained side or part; and he chooses a particular position, which is preserved unchanged; any motion of the body seems to aggravate the pain of the chest. The respiration is frequent, quick, and short, and often performed *exclusively by the diaphragm, the chest being motionless*. If a deep inspiration be attempted, it induces sharp pain, and is, with the calling out from this pain, immediately checked and suppressed by the patient. The cough is also checked, and is, at first, short and dry, and attended with sharp pain. The patient speaks in a low tone, and in short sentences. The pulse is rather frequent and sharp, sometimes less affected than might be expected. The pain is situated in various parts of the chest; generally on one side, or under the sternum; sometimes under the scapula, or at the back.

Pleuritis terminates fatally by implicating in inflammatory action the viscera it invests, by spreading to other serous membranes, or by effusion, adhesion, &c. the consequence of inflammation when it attacks serous membranes. Adhesions are very frequently formed with-
out

out material inconvenience to the patient; and no doubt increased effusion sometimes occurs without any ill effect. The lungs, the pericardium, and heart, commonly become involved in the morbid action, when death occurs in pleuritic complaints.

The treatment of inflammation, whether seated in the parenchyma of the lungs or the pleura, is similar. The remedy chiefly to be depended upon is *blood-letting*, freely and early employed. The quantity of blood drawn must of course be regulated by the violence of the disease, and the strength of the patient's constitution, and ought generally to be as large as this last circumstance will allow. The remission of the pain and the relief of the respiration, during the flowing of the blood, may limit the quantity to be then drawn; but, if these symptoms of relief do not appear, the bleeding should be continued until some degree of sickness and faintness, the signs of approaching syncope, come on. This direction is as old as the writings of Hippocrates. It will often happen, that one bleeding, however copious, will not prove a cure for the disease: for, although the pain and difficulty of breathing may be much relieved by the first bleeding, these symptoms very frequently recur after a short interval, and often with as much violence as before. In the event of such recurrence, the bleeding must be repeated, even in the course of the same day, and perhaps to the same quantity as before. Sometimes the second bleeding may be larger than the first. There are persons who are constitutionally liable to faint even upon a small bleeding; and, in such persons, this may prevent the drawing of so much blood at first as a pneumonic inflammation may require; but, as the same persons are frequently found to bear subsequent bleedings better than the first, these may be carried to the extent which the symptoms of the disease seem to demand. For it is according to the state of the symptoms, that the bleedings must be determined to be repeated; and they will be more effectual, when employed in the course of the first three days, than afterwards: but they are not to be omitted, although four or five days may have elapsed before the physician is called in; nay, if there be a recurrence of the urgent symptoms, as described above, the bleeding should be repeated at any period of the disease, especially within the first fortnight, and even afterwards, if a tendency to suppuration be not evident, or if, after an apparent solution, the disease shall have again returned.

There is in peripneumony, as in some other acute inflammations, a state of pulse occasionally recurring, which, to an inexperienced practitioner, appears to contra-indicate the use of the lancet; it is soft, and small, or what has been called an oppressed pulse; but it rises, and becomes fuller and larger, after blood-letting. Under such circumstances, the propriety of the blood-letting is to be determined by the urgency of the other symptoms, especially of the *difficulty of breathing*. In a similar manner, a pulse that is irregular, and beats with considerable intermissions, in peripneumony, will become regular after the relief of blood-letting; and such a state of pulse, therefore, when the pneumonic symptoms are urgent, is not to be considered as contra-indicating, but as more strongly demanding, the use of the lancet.

When a large quantity of blood has been taken from the arm, some blood may be still taken locally, by means of cupping. This local blood-letting will be particularly proper, when the continuance or recurrence of pain, rather than the difficulty of breathing, becomes the urgent symptom. After this, a large blister should be applied over the thorax or side, according to the seat of the pain, and the abstinent and cooling regimen rigorously enforced.

Some practitioners, apparently upon theoretical grounds, have objected to the use of *purgatives*, upon the supposition that the evacuation which they occasion may tend to suppress the expectoration: but, in the vigour of the

patient and of the disease, such an apprehension is absolutely groundless. On the contrary, the free evacuation of the bowels, by cooling purgatives, conduces, like the blood-letting, to diminish the local and general inflammatory action. In the turgid and loaded state of the lungs, the straining of *vomiting* is likely to be productive of mischief, and can answer no useful purpose; but the practice of exhibiting *nauseating* medicines is highly proper. Of these, antimony and ipecacuanha, combined with digitalis, are the most common. The last medicine is also used with advantage in the earliest stages of the disease, to repress the frequency of the pulse.

Though it has not been our custom, in the compilation of this article, to enter particularly into necrotomy, because we wished to be the more full on the actions and disorders which lead to fatal diseases, rather than to detail irremediable conditions; yet we cannot avoid transcribing from the judicious Laennec, his account of the appearance on dissection which the inflamed pleura exhibits. The minutiae of pathological anatomy are sufficiently important in regard to the obscure diseases of the chest, to warrant this deviation from the general tenor of our labours.

The anatomical character of acute pleurisy, like that of the inflammation of all serous membranes, is redness of the part affected. This redness is in some sort punctuated, and looks as if one had traced with a pencil upon the pleura an infinity of small bloody spots of very irregular figure, and very close to one another. These red points occupy the whole thickness of the membrane, and leave small intermediate portions retaining the natural white colour. This punctuated appearance is unquestionably a character of the inflammation, and not at all attributable, as some have supposed, to the partial disappearance of the redness after death. Besides this particular redness, and even in those instances where it is very inconsiderable, we always find the superficial blood-vessels of the pleura redder, more distinct, and more distended, than in the natural state.

M. Laennec never could clearly make out a distinct thickening of the pleura in these cases. Such supposed thickening, he thinks, has been either an extensive congeries of miliary tubercles on the outer or inner surface of the pleura; or a cartilaginous incrustation on the parts covered by it; or, lastly, false membranes, more or less dense, adherent to its internal surface.

Inflammation of the pleura is always accompanied by an extravasation on its internal surface, and which may be considered as the species of suppuration proper to serous membranes. This extravasation appears to commence with the inflammation itself. It consists of two very different matters. The one, of a firmer semi-concrete consistence, is usually termed *false membrane*, or coagulable lymph; the other, very thin and watery, is called, *serosity*, or sero-purulent effusion. Both of these exhibit great variation of character. The *false membrane* consists of a yellowish-white, opaque, or semi-transparent, matter, varying from the consistence of thick pus to that of boiled white of egg, or of the buffy coat of the blood. This substance forms a complete incrustation (where the inflammation is general) over the pleura costalis and pleura pulmonalis. These two sheets of pleura are sometimes united by bands of the same membrane, extending from the one to the other, through the serous fluid effused into the cavity. These membranous exudations vary in thickness, from half a line to two lines; sometimes exhibiting a kind of reticulated structure; at others, appearing studded or granulated with small irregular tubercles. These membranes are sometimes detached and found floating in the serosity. The *serous effusion* is commonly of a lemon, or light-yellow, colour, transparent or slightly flocculent, resembling unstrained whey; an effusion common to all the serous membranes in the body. In some cases, this effusion is of a very deep tawny colour, ruddy, and evidently mixed with blood; sometimes, in-

deed, quite bloody. The portions of pleura situated beneath false membranes, when this is the case, are much redder than in the most acute recent inflammation, owing, as Laennec thinks, to a secondary inflammation supervening at a later period than the formation of the false membranes. The effused fluid is generally without taste or smell in acute pleurisy. The relative proportions between the effused serum and albuminous concretions, is not at all fixed. Generally speaking, the more violent the inflammation, the more extensive and thick is the membranous exudation. In weak leuco-phlegmatic subjects, on the contrary, we find a great quantity of limpid serum, with a small portion of thin membrane often floating in it. In such cases, the pleurisy seems to pass insensibly into hydrothorax, as we shall see more particularly hereafter. It is an exceedingly rare case, M. Laennec observes, to find the contiguous surfaces of the pleura united, without previous effusion of fluid, since the absorption of the fluid is the first step in the sanative process. We may therefore conclude, on finding those old adhesions of the lungs to the sides, that there existed, in the acute stage of the disease, an effused fluid; for, when patients happen to die in that stage, we almost invariably find an effusion. The following passage will convey a clear idea of the sanative process in pleurisy, and the organization of the extravasated substances.

"It is the character of the *false membranes* produced in pleurisy to be changed into cellular substance, or rather into a true serous tissue like that of the pleura; and this is the natural progress of the process when left quite undisturbed. This change is produced in the following manner: The *serous effusion* which accompanied the membranous exudation is absorbed, the compressed lung expands, and the false membranes investing it and the costal pleura become united into one substance. By and by, this substance becomes divided into layers pretty thick and opaque, which are separated by a very small portion of serosity. About this time blood-vessels begin to make their appearance in it, the first rudiments of which have the aspect of irregular lines of blood, much larger than the vessels which are to take their place. The blood seems as if it had been forced into the substance of the false membrane by a strong injection; and we find the corresponding portions of the pleura redder than elsewhere, and as it were spotted with blood. After a time, the pseudo-membranous layers become thinner and less opaque; the lines of blood assume a cylindrical shape, and ramify in the manner of blood-vessels, but still preserving their augmented diameter. On minutely examining these at this stage, we find their external coat consisting of blood scarcely yet concrete, and very red; within this there is a sort of mould, or rounded substance, whitish and fibrous, and formed evidently of concretioned fibrine, perforated in its centre, already permeable to the blood, and evidently containing it. Eventually, the layers of the false membrane become quite transparent, and nearly as thin as those of the ordinary cellular tissue, and the blood-vessels resemble in every respect those which ramify on the inner surface of the pleura. It wants, however, the firmness of the natural cellular substance, being easily torn in our attempts to examine it, and its vessels still retain the large diameter indicative of their recent formation: and it requires some considerable time for them to attain the perfect character of the original tissues of the body." These organizations having taken place, the health remains unaffected, and the respiration, except in some particular cases, does not suffer from their presence.

In simple pleurisy, we find no sign whatever of inflammation of the pulmonary parenchyma, even in the vicinity of the most inflamed portions of pleura. We find the substance of the lungs in such cases more dense and less crepitous, owing to the compression of the effused fluids. If the extravasation has been very great, the lung becomes flattened, ceases to contain air, and con-

sequently to crepitate; its vessels are compressed and contain little blood, and the bronchia, with the exception of the larger trunks, are evidently rendered smaller. Sometimes, however, we observe certain portions of the lungs possessing a redness like that of muscle; and a compact homogeneous texture, in which no trace of air-cell can be detected. This has been termed *carnification* or *hepatization* of the lungs. Laennec considers it a product of inflammation. For some further interesting particulars as to *Empyema*, and the products of chronic pleuritis, we refer the reader to Laennec's work "*De l'Auscultation mediate, &c.*"

Some authors have asserted the existence of chronic pleurisy as giving rise to *Empyema*, and a variety of morbid products within the bags of the pleura. These symptoms are very insidious; and we do not find them altogether clearly detailed in any author. A slight pain in the side with dry cough (which latter brings on a stitch in the side), together with a pulse rather hard, are the only circumstances which occur to our recollection. The disease is seldom recognized till effusion or adhesion has taken place, when, according to Laennec, some information may be derived from the use of the *stethoscope*, of which instrument we shall presently have occasion to speak.

8. *Empyema corditis*, inflammation of the heart: pain in the region of the heart, often pungent; anxiety; palpitation; irregular pulse.

The diseases of the heart are confessedly the most difficult to recognize in the whole range of human maladies. When we consider the complicated actions which the heart is the agent of, and the irregularities those actions are subjected to by alterations in the surrounding organs which are associated in its movements, it will be sufficiently obvious, that the same disease of the structure of the heart will, as it affects one or other of its parts, give rise to various and dissimilar phenomena. To illustrate this by a very simple fact: if the capillaries of the lungs be obstructed, increased propulsive power must be exerted by the right ventricle; and, the structure of this portion obeying the general laws of all muscular parts, its increased exercise will be followed by correspondent diminution of power, and debility will ensue. To trace the effect of the above irregular impulse on the powers and functions of the heart would lead to a wide and undefined department of medical science; to wit, an account of the mode of production of the various morbid growths found in the cavities of the heart. The circumstance is merely mentioned to show, that, because the heart is composed of four cavities, each subject to similar alteration from different causes, and vice versa, we cannot but expect to find very anomalous symptoms in its diseases. Thus, in *carditis*, the most unsatisfactory accounts have been given, because, till the present time, authors overlooked the fact, the palpable fact, that inflammation must be different as it was situated in one or another portion of the heart; and that in a violent degree it might actually be directly opposite in its symptoms to its milder forms.

The symptoms usually ascribed to *carditis* were fever, pain in the situation of the heart, palpitations, an irregular pulse, cough, difficulty of breathing, and often syncope. It is obvious that the symptoms here enumerated are merely the common symptoms of *peripneumony*, or pleurisy, with the addition of palpitation, irregularity of pulse, and syncope, or fainting. But it is observed by Senac, that these symptoms are extremely uncertain; and with regard to palpitation, although its presence may lead us to suspect that the heart is affected, yet it is probably an hypothetical opinion, since, in that inflammation which arises from wounds of the heart, palpitation does not occur. (*Traité du Cœur*, tom. ii. chap. 7.) With respect to the other two symptoms, it has been remarked, that the presence of an irregular pulse, and the occurrence of syncope, together with the symptoms of pneumonia

monia (or inflammation of the lungs), can only lead to a probable suspicion of an affection of the heart; since they are by no means constant attendants on carditis; and the former very frequently attends other cases of pneumonia. (Wilson on Febrile Diseases, vol. iv.) Upon the same grounds Dr. Cullen accords with the observations of Vogel, that "the symptoms of carditis are nearly the same with those of peripneumony, but in general more severe."

In this perplexity as to the most important of cardiac diseases, it must be highly gratifying to have an addition to our usual modes of diagnosis. This has been attempted, as our readers are probably aware, by Laennec. This author perceived that many of the movements of the thoracic viscera were *audible*, and conceived the design of rendering this circumstance useful to his profession. Finding the application of the ear to the chest inefficient to give very accurate information on the subject, and acting on the established knowledge of the increase of sound when passing through tubes, the author invented an instrument which he called, from its use, a *stethoscope*. It is merely a cylindrical piece of dense wood, about one foot in length and four inches in circumference, having a hole drilled longitudinally through it of about three lines in diameter. The lower end of the instrument is placed on the thorax of the patient, the upper to the ear of the physician; and through this perforation the rushing of the air into the air-cells in inspiration, &c. is heard. We pass over this however for the same reason that we did when speaking of pulmonary complaints, because we cannot ourselves discover the phenomena Laennec describes, though we are willing to admit this may be the result of want of tact. As far as regards the motions of the heart, the stethoscope seems entitled to more credit; and by its use, and by means of the important discussion now going on, we may hope soon to fix the diagnosis of diseases of the heart on the firmest grounds.

Before entering on Carditis, it will be necessary to speak of the motions which are heard through the medium of this cylinder during health. We speak first of the extent at which the beating of the heart is heard. The beating of the heart is heard most distinctly when the cylinder is applied to the left side, between the fifth and seventh ribs, or to the lower part of the sternum, the action of the left side of the heart being best heard in the first situation, the action of the right in the second. It is also heard in a less degree over the right side. It is more distinct during exertion, &c. and in thin people, the beating being less perceptible and less diffused in fat persons. In the former, indeed, we sometimes hear the beating of the heart all over the sternum, on the left side as far as the clavicle, and sometimes in the same situation on the right side. When the beating of the heart is heard beyond these limits, or even within them, if the patient has slight dyspnoea, is unable to take much exercise on account of shortness of breath, palpitation supervening to slight emotions, &c. we may suspect disease of the heart, though these symptoms may continue for years without any further changes. It seems that, when the parietes of the heart are thin, and consequently weak, the beating of the heart is heard over the greater part of the thorax; and that the reverse happens when those parts are thickened. It should be remarked, however, that the increase in the general size of the heart causes its beating to be externally heard.

The next point to be attended to in the use of the stethoscope, is the degree of impulse which the beating of the heart gives to the chest. Laennec calls this the *shock*. It must not however be confounded with the movements of respiration, which, when short and frequent, as in fevers, &c. may be mistaken for it. It seems that this shock is audible through the cylinder when it cannot be felt by the hand. It is rather indistinct in healthy and fat persons; and is generally in a direct ratio to the thickness of the walls of the ventricle, conse-

quently in an inverse ratio to the extent of the beating of the heart. It is only heard during the contraction of the ventricles; or at least the contraction of the auricles, when audible, produces a more distant and indistinct sound. The *shock* is scarcely heard at all when the parietes of the ventricles are morbidly thin. The increased force of this shock is viewed, therefore, as presumptive evidence of thickening of the parietes of the ventricles, while its absence seems to indicate dilatation of the ventricles. Laennec endeavours to point out the phenomena developed by the stethoscope when both the latter states of disease are present; but these are by no means satisfactory. The *shock* is heard over the fifth and seventh ribs on the left side, over the lower half of the sternum, or, when that bone is short, over the epigastrium. Coinciding with the shock above-mentioned, and coinciding also with the pulse, we hear, by means of the cylinder, an obtuse sound which lasts about two seconds: this is produced by the contraction of the ventricles. Immediately afterwards we hear the contraction of the auricles announced by a short acute noise, which Laennec has compared to the sound produced by the lapping of a dog or from the valve of a bellows. He denominates it *claquement*, a word well translated by our English *clacking*. This clacking, the sign of the contraction of the auricles, is followed by the perfect inaction of the heart for a short space of time. Then the obtuse noise, and rising or *shock* of the ventricles, is again heard; which is instantly followed by the *clacking*; and so on. The proportion of these motions is nearly as follows: of the time occupied by all the motions of the heart, one fourth is taken up by the *clacking*, or contraction of the auricles; one fourth by absolute rest; and one half by the contraction of the ventricles. Having thus explained, in a certain degree, the application of this new instrument, we return to Carditis.

As between inflammation of the brain and arachnoid membrane, as between that of the pleura and of the lungs, the symptoms vary, so also do we find them varying as the muscular substance of the heart, or its investment, the pericardium, is the seat of this action. This opinion is of course to be received with some distrust, because our knowledge of the diseases of the heart is very limited. We rest it chiefly on the authority of Laennec, than whom no one has performed more important service in elucidating the nature of the disease we are treating of.

The principal divisions of diseases of the heart are made with reference to the morbid products or alterations of structure found on dissection. Though we propose to mention cursorily the chief of these, it is by no means our intention to treat of them fully. We shall rather confine ourselves to a minute and laboured detail of the forms and diagnostics of inflammation as it affects the various parts or structures of the prime mover of animal life. We do this, because it seems to us, that morbid anatomy is of no use unless it leads to a discovery of the mode of action by which diseased structures are built up; for that, in the majority of cases, when once formed, all endeavours to remove them by medical skill are unavailing, is a truth but too well known.

Inflammation of the investing membrane of the heart, or *pericarditis*, has been usually held to be undistinguishable from inflammation of the heart itself; and, when acute, this must necessarily be true of all but the first periods of the disease, because its connection with its inclosed vessels will of course bring on actual Carditis. The symptoms of acute pericarditis are simple acceleration of the movements of the heart; viz. quick and hard pulse, redness of the capillary system as manifested in the skin, added to the usual symptoms of phlogosis of serous membranes. The acceleration alluded to is evidently an effect of irritation of the muscular fibres of the heart; and, this being uniformly exerted over the whole of the

heart, we should naturally expect to find more increase in the quickness and force of its motions: for, to more rapid circulation through the pulmonary circles we refer redness of the skin; to the same increase through the aortal system, arising from quickened action of the ventricles, we refer, the quick pulse; and to these united, the increased heat. The same symptoms belong also to that early stage of carditis which has not passed the bound named *excitement*, and to inflammation of the membrane which lines the heart and arteries. From this it follows, that the primary symptoms of inflammation, in whatever structure of the heart it may be situated, produces the same symptoms while it is within certain limits as to violence; but this is by no means true of those grave phlogoses which attack particular spots of the heart, or attack it generally in a violent manner. Nor is it true of the severest forms of pericarditis or arteritis, (the term by which we designate phlogosis of the inner membrane of the heart and arteries.) In these, the symptoms betray the following variations. Most authors have asserted, that between acute pericarditis and actual carditis there is no difference. Indeed Dr. Baillie and others have stated that they are never found separate on dissection. Laennec, however, denies this. In carditis, in common with other thoracic inflammations, we have difficulty of breathing, febrile heat, and thirst. From the peculiar sensibility of the nerves with which the heart is connected, extreme anxiety and oppression are met with, the countenance betraying the deepest distress. From the increased sensibility of the nerves, the motions of the heart are felt by the patient: this constitutes what is termed *palpitation*. Palpitation is more generally felt, however, from arterial increase in the motions of the heart. It is sometimes so great, that it is felt even in the carotids and the head. One side or cavity of the heart, acting more rapidly than its correspondent one, naturally induces irregularity of pulse; it likewise induces an accumulation of blood in one cavity to so great a degree, as to suspend its action: hence arises syncope. Pain is likewise present: it is usually described as of a sharp and gnawing kind, situated under the sternum, and is highly aggravated by muscular motion. The recumbent posture is often uneasy, the patient feeling easiest when the body is bent forwards.

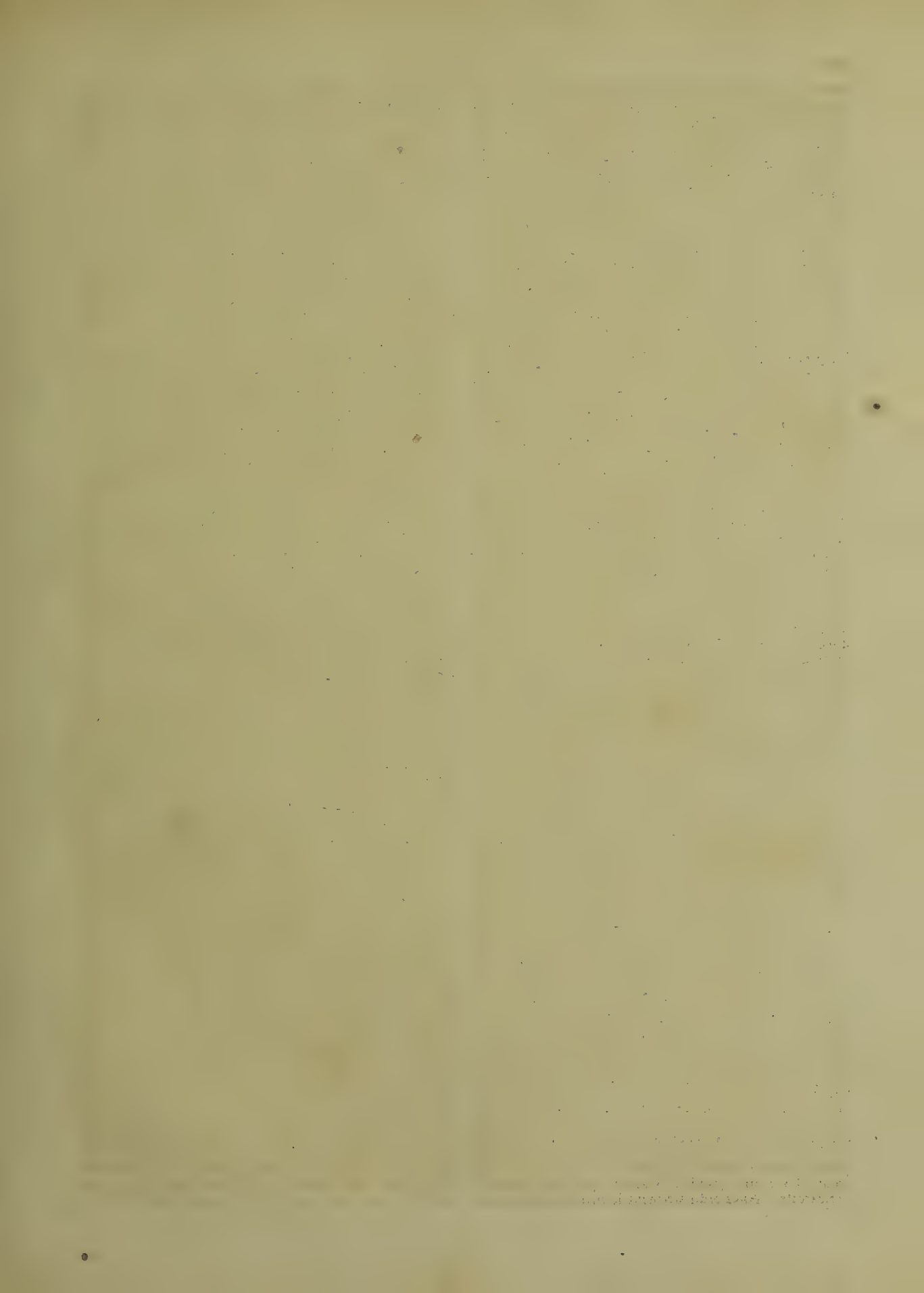
That inflammation of the heart has existed without all these symptoms is no objection to the account here offered, for pain is often absent in other phlogoses commonly characterised by it. It may happen that irregular action of the muscular fibres of the heart may not occur, in the same way that spasmodic contraction of the muscular coats of the bowels does not always attend phlogosis of the internal membrane, though it does so commonly. And, if the latter proposition be admitted, we shall have no difficulty in accounting for the absence of syncope and irregularity of pulse. It is to be noticed, that inflammation of the muscular substance of the heart is a disease of rare occurrence. Laennec doubts if a case has appeared in which inflammation occupied the whole of the structure in question. Phlogosis of particular portions, ending in abscess or ulceration, are more common; but still the majority of cardites seem to be membranous affections.

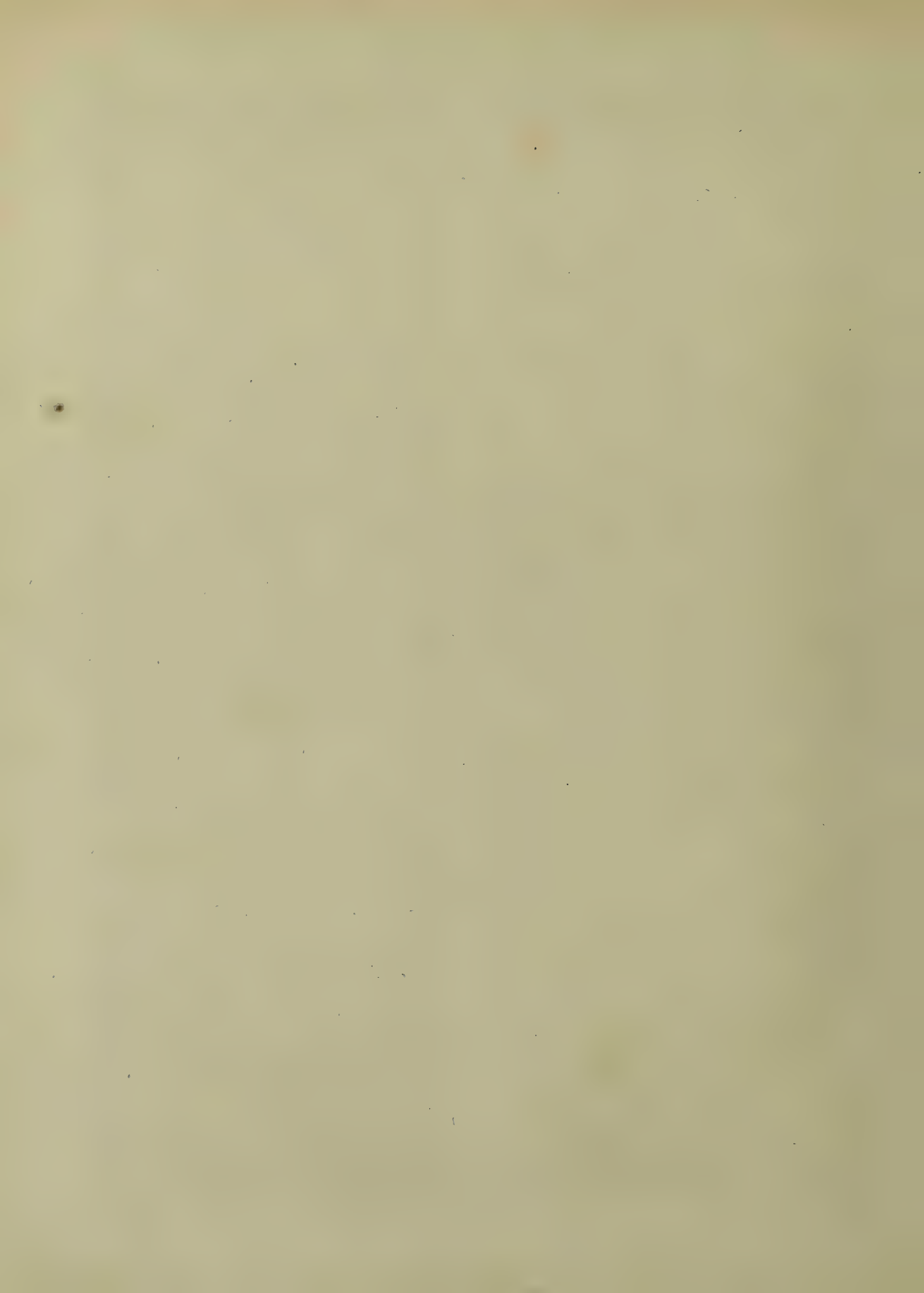
The following are the symptoms of acute pericarditis, as described by Laennec. "Les contractions des ventricules du cœur donnent une impulsion forte, et quelquefois un bruit plus marqué que dans l'état naturel; à des intervalles plus ou moins longs surviennent des pulsations plus faibles et plus courtes, qui correspondent à des intermittences du pouls, dont la petitesse contraste extraordinairement avec la force des battemens du cœur; quelquefois il peut à peine être senti. Lorsque ces signes surviennent tout-à-coup chez un homme qui n'avait jamais éprouvé de symptômes de maladie du cœur, il y a une grande probabilité qu'il est attaqué de péricardite. Assez ordinairement le malade éprouve une

dyspnée plus ou moins grande, des angoisses, une anxiété inexprimable; il ne peut faire quelques pas, ou se remuer un peu bruyamment dans son lit, sans éprouver des syncopes. Le sentiment de douleur, de chaleur, ou de poids à la région du cœur, est un symptôme beaucoup plus rare, mais qui se rencontre cependant quelquefois. Dans quelques cas, la région du cœur rend un son mat; mais le plus souvent ce signe n'est pas bien évident."

When the membrane which lines the cavities of the heart and large arteries is inflamed, constituting *arteritis*, we observe the following circumstances. The complaint sometimes arises spontaneously, but more frequently as a consequence of severe febrile affections, small-pox, measles, or rheumatism. When it comes on vicariously with the latter disease, all the phenomena of carditis are uncommonly severe except syncope, which is often not present.

This disease has also supervened on extensive surgical operations. It sometimes begins as phlebitis, or inflammation of the viscous; sometimes as arteritis, or inflammation of the arteries; occasionally it produces death, while confined to one or other of these vessels, but more frequently the lining of the heart becomes implicated before the fatal event. The symptoms of the complaint are—general redness of the skin; increased pulsation of the arteries, so great as to be visible at the distance of some paces from the patient; and the usual symptoms of carditis soon follow. Early in the disease, if its development is not sudden, the patient is restless, impatient, watchful, irritable: he experiences partial flushings, which gradually increase both in frequency and extent: his bowels are inactive, but his pulse is imperceptibly affected. By and bye, he complains of a deep-seated pain in some part of the abdominal or thoracic regions, and seldom fails to describe it as being hot, lancinating, spasmodic, and increased by slight exertion. Disturbance of the vascular system now comes on: respiration is accelerated, and the breath feels offensive from its heat. The mouth, however, remains humid, the tongue red, the lips moist and natural. Rigors at last are felt; and, as the disease advances, the internal pain becomes more diffused. The original flushings give place to a true febrile state of the cutaneous surface; and the inquietude is succeeded by head-ache, nausea, languor, and depression. Inappetency and quenchless thirst prevail. The bowels are more obstinate; the mouth tastes bitter. The pulse, in some instances, is hard, strong, and tumultuous; in others, wiry and irregular. If transient sleep is obtained, it is unrefreshing and interrupted by startings and frightful dreams. About this time cough begins. This sometimes is dry, frequent, teasing; sometimes it recurs in violent and tedious paroxysms, and is accompanied with expectoration of fetid mucus, the clots of which are occasionally streaked with florid blood. When the disease has, at length, acquired a formidable ascendancy, all its previous symptoms, and the symptomatic fever (which is generally the inflammatory), are greatly aggravated. The patient's countenance suddenly shrinks, becomes pallid, haggard, cadaverous. His strength sinks; his emaciation is extreme. His lips are crimson or livid; his tongue red, smooth, moist. At the same time his breathing is rapid, difficult, irregular; the head-ache intense; the pulse hard, labouring, intermittent, accelerated to 110—130. Consecutive to the former deep internal pain, a distressful sense of constriction, most frequently in the cardiac, præcordial, or epigastric region, is established. Spasms not unlike those of tetanus, in many cases, occur under the xyphoid cartilage, and in the line of the diaphragm. The countenance and extremities grow cedematous. forcible palpitations of the heart, and, in some instances, of the abdominal aorta, so as to be distinctly felt through the integuments, now predominate. The arteries pulsate with alarming and painful violence, and the action of the more superficial is quite visible: that of





the carotids is audible by the patient himself, often by his attendants. Syncope is frequent; the paroxysms of dyspnoea protracted and agonizing. The anasarcaous effusion extends and becomes general. In many cases ascites supervenes; in others, hydrothorax: in some, the extravasation of serum is universal and profuse. Dyspnoea succeeds, and the patient is confined to a sitting posture. The least motion excites cough, and a sense of instant suffocation. Wheals and ecchymosed patches arise in different parts of the body. Violent convulsions ensue; and, in one of these, exhausted already and moribund, he struggles and expires.

The appearances on dissection are a general and deep redness of the internal coats of the arteries, veins, and heart: sometimes this last presents a spotted appearance: it is to be observed, however, that both purple and scarlet redness of the internal membrane of the heart and large arteries, has been noticed by Hodgson and Laennec in subjects who had not suffered inflammation. We shall not detain our readers long on the necrotomy of this disease further than to observe, that inflammation of the arteries, whether chronic or acute, renders the vessels liable to the deposition of organizable lymph on their internal surface; to obliteration, dilatation, and aneurysm; to a cartilaginous and steatomatous thickening of their inner coat; to the deposition of offensive and other matters in any part of their structure; and to become scirrhous, cancerous, fungous, ulcerated, or sphacelated.

The reader will perceive the difficulty of distinguishing arteritis from simple inflammatory fever; but the mistake is not of much consequence, since the treatment is in each disease the same. A very close analogy is also perceptible between the symptoms of this complaint and the form of inflammation described before it. As to the duration of these diseases, they are various. What we have hitherto stated with regard to carditis applies to its most violent form, to that form indeed which runs its course in from two to seven days. Another form of carditis is now and then found which is called the subacute: this variety is characterized by symptoms analogous to those of the acute, only somewhat more moderate. There is less severe pain and sensation of burning in the situation of the heart; but which are generally preceded by shivering, and attended with great heat and thirst, and a quick, hard, and sometimes irregular, pulse. The countenance of the patient, at the commencement of the attack, is usually suffused, but after a lapse of a few days becomes hollow and dejected, and has a peculiar irritable look. There is a constant state of agitation and great anxiety. The palpitations of the heart are not so vehement; and the faintings, if they occur, are usually of an incomplete description. If the disease run on to a fatal termination, the hippocratic look of the face, an abatement of pain, slight rigors, extreme anxiety, sense of suffocation, slight faintings, and occasionally oedematous swellings, take place a short time prior to that event.

Sub-acute inflammation of the heart is sometimes complicated with Pneumonia, Pleuritis diaphragmitis, and organic obstructions in the great vessels. It has also been connected with the symptoms of Catarrhus suffocativus and croup, though the usual seat of those affections betrayed no inflamed appearance on dissection.

The treatment of carditis under each of these forms is simple, but too often ineffectual. Bleeding is every thing in it. We have urged the necessity of very active blood-letting in most of the species of this genus we have at present passed through. It will be sufficient therefore to observe, that carditis calls for more active depletion than any other of the Phlogotica: for, not only must we bleed to reduce inflammatory action, as in other structures, but we must also bleed with the view of setting the heart at rest; this operation being the only one by which rest can be procured. In addition to these measures, it is proper to excite the capillaries by all sorts of irritants; as by drastic purges, brisk diuretics, diaphoretics, blis-

ters, or frictions with tartarized antimony on the chest, or, if in a rheumatic patient, on the legs. It must not be concealed, however, that, except the bleeding and purging, little dependance can be placed on these measures. Should they be so fortunate as to produce a remission of symptoms, we should salivate the patients without loss of time by mercurial inunction, and by scrupulous doses of calomel combined with opium. Local bleeding seems next to useless in Carditis. In Arteritis, very large doses of digitalis may be given with advantage.

A no-less formidable disease, and one still more difficult to recognise, is *chronic carditis*. It proceeds so insidiously, that it often becomes incurably established before a suspicion of its true nature has occurred. It frequently subsists unattended by any pain in the region of the heart itself. On the contrary, it is apt to induce pain, and to resemble affections, in *distant parts*, as the epigastrium, the hypogastrium, &c. It is at length ascertained to have existed, by the symptoms of deranged circulation, the effects of organic change superinduced; or perhaps its existence is not suspected during life. The symptoms which have been most frequently observed are—some degree of febrile affection; a small, quick, and irregular, pulse; and a peculiar jarring sensation communicated to the hand when placed over the situation of the heart. Palpitation of this organ is generally absent; but, when it does occur, it is inconsiderable in point of extent. There is usually no pain, though we sometimes meet with a little uneasiness in the region of the heart: at other times a slight degree of obtuse fugitive pain may be present. When pain is seated in the hypogastric region, it is oftentimes attended with suppression of urine. Sometimes there is a sense of beating in the head. The pulsation frequently takes place in the epigastric region, which has, in some degree, the appearance as if it arose from a throbbing tumour. Obstinate vomiting is occasionally present. At length dropical affections supervene, as oedema of the face and extremities, and effusion into the cavity of the thorax; the breathing then becomes more difficult and laborious; the countenance assumes an anxious and bloated aspect; delirium not infrequently comes on; and the patient after much suffering, of longer or shorter duration, sinks into dissolution. Chronic inflammation is not uncommonly superadded to dilatation or enlargement, and also to other organic affections, of the heart.

M. Corvisart describes a variety of Pericarditis, which he denominates sub-acute. It is less rapid in its course, and less obscurely marked, than acute inflammation of this organ, but nevertheless more marked and rapid than the form of disease just detailed. "L'invasion de la pericardite sub-aiguë, est bien rarement marquée par des symptômes vifs qui puissent faire regarder la maladie comme devant être promptement funeste. La pleurésie est la phlegmasie avec laquelle cette pericardite commençante a le plus de traits de ressemblance. Comme dans cette affection, le malade éprouve d'abord un sentiment de chaleur générale dans tout le côté malade de la poitrine; peu après, cette chaleur se concentre vers la région du cœur; là, se fait sentir une douleur vive et brûlante. La respiration devient promptement haute et gênée; le pouls est fréquent, dur, et rarement irrégulier; les deux poignées, et particulièrement la gauche, sont colorées d'un rouge vif; tels sont les phénomènes de l'invasion: mais au troisième ou quatrième jour, l'altération particulière des traits, la figure grippée, sur laquelle on voit l'expression d'un abattement profond et pourtant d'une sorte d'irritation, une anxiété constante et exprimable, une agitation continuelle, la respiration haute, pénible, entrecoupée, les palpitations légères, les défaillances incomplètes, d'autant plus éloignées l'une de l'autre que la marche de la maladie est plus lente; enfin, le pouls petit, fréquent, dur, serré, concentré, souvent irrégulier, ne laissent que peu de doutes sur le siège positif de l'inflammation. Les symptômes plus graves, qui, vers

le troisième jour, remplacent ceux de l'invasion, ne restent les mêmes que pendant peu de temps, après lequel le visage s'altère davantage, la face prend tous les traits de celle si bien dépeinte par Hippocrate; la douleur cesse en tout ou en partie; il y a des frissons fugaces, des défaillances longues et incomplètes, des suffocations, une anxiété insupportable; une infiltration générale survient: le malade meurt enfin, le plus souvent à l'improviste, soit en voulant se lever, soit en buvant, soit en changeant de position."

The treatment of chronic carditis, and the above-mentioned form of pericarditis, consists in keeping the heart in a state of comparative rest by occasional bleeding, and a diet of the most sparing kind; in counter-irritating the skin by blistering, or by a seton, and by the gradual introduction of mercurial remedies. In the mean time the action of the bowels, of the skin, of the kidneys, and indeed of all parts of the secretory system over which medicine has any controul, should be gently excited.

Acute carditis, i. e. of the muscular substance, terminates in abscess, ulceration, gangrene, or rupture. Gangrene must be of rare occurrence, since the rupture would most probably take place before the former accident could occur. We have no means of knowing, during life, that abscess or ulceration exists. The former may exist without symptoms; for Benivenius gives a case of a criminal, who, before his execution, seemed perfectly well, in whose heart, however, an abscess was discovered on dissection.

From the cases hitherto recorded, it seems that abscess is more rare on the internal than on the external surface of the heart. On the contrary, ulcers are most common on the inside of the heart. Ruptures are the frequent mode of termination of ulcers in the heart. Rupture may occur, however, from violent and sudden exertion; but these cases are few in number. It is remarkable that ruptures of the right ventricle are less frequent than ruptures of the left; and that, in the latter case, the rupture seldom happens at the thinnest part of the muscular substance. It is needless to add, that these ruptures must be followed by instant death. A rupture of the *cardæ tendinæ* may occur, however, without this sudden fatality. On dissection of rupture of the heart, the pericardium is invariably found full of coagulated blood.

Increase of substance of the heart, or hypertrophy; and diminution, or atrophy, morbid dilatation, and contraction, are all affections which may arise from chronic irritation of the muscular substance of the heart. This is only, however, a surmise: it is certain that the above-mentioned state may come on without any affection of the heart's substance, but from obstruction or disease in contiguous viscera. The cause of morbid hardness or softness of the heart is supposed to be possibly chronic inflammation; but nothing is known precisely on that head.

Pericarditis terminates in an effusion of water, in tubercles, granulation of various kinds, and more commonly in adhesions. When *effusion* takes place in the pericardium, and the case is unattended with organic diseases of the heart, we have, in addition to the symptom of deranged function exhibited in carditis, a deep livid colour of the lips; sometimes a cough; a constant sense of weight in the region of the heart; frightful dreams, the subject of which is generally impending suffocation. The weight at the chest is generally aggravated by the recumbent position; the easiest posture being a gentle inclination forwards, the hands resting on the knees.

These are all the symptoms observable in hydrops pericardii of small dimensions; that is to say, when one pound or so of water is effused: but, when the complaint is more excessive, (for the effusion is said to have reached the extent of eight pounds,) we have, as some authors say, much more marked symptoms. Senac avers, that he has seen the fluctuation of the fluid contained

within the pericardium, between the third, fourth, and fifth, ribs; and Corvisart mentions that he once felt it. Pulsations, moreover, are sometimes felt a little on the right of the sternum, and also a little higher or lower on the left side than where the heart's pulsation is commonly recognized; these arise from the water being impelled, by the action of the heart, with some degree of force, against the parieties of the thorax at different points.

It is reasonable to suppose, that with the *stethoscope* we should experience a sound of fluctuation; and that, if the pleura contained fluid, we should meet with this at some distance from the heart, and isochronous with its pulsations. Laennec heard a very distinct fluctuation in a case in which *air* was contained in the pericardium.

We should not pronounce, on dissection, that a patient had laboured under this disease merely because we found a small quantity of water in the pericardium, since a few ounces may be poured forth after death. The effused fluid is generally limpid, and tinged with yellow or red. It has been proposed to cure this malady by puncturing the pericardium, some advising this to be done through the ribs, others by trephining the sternum.

We have not space to detail the other various products found in the pericardium: they are indeed the same as in all other serous membranes. We have a few words, however, to say on adhesion of the pericardium to the heart. Many authors have described formidable symptoms as attached to this malady: but it is remarkable that more recent investigation has shown, that the symptoms described are as uncertain as in any other disease of the heart. We quote from Laennec the following remarkable account. He says, "Avant que la conversion des fausses membranes en tissu cellulaire fût bien connue, l'adhérence du péricarde au cœur a été regardée par divers auteurs comme la cause de plusieurs accidens graves. Lancisi et Vieussens pensent qu'elle produit constamment des palpitations; Meckel, qu'elle rend le pouls habituellement petit; Senac, qu'elle détermine des syncopes fréquentes. M. Corvisart lui-même est tombé à cet égard dans plusieurs erreurs. Il admet trois espèces d'adhérences: dans la première, l'adhésion du péricarde au cœur a lieu au moyen d'une matière albumineuse demi-concrète; et c'est la seule qu'il reconnaisse comme une suite de la péricardite. La seconde est l'adhérence intime ou par un tissu cellulaire très-court: il pense qu'elle est l'effet d'une affection rhumatismale ou gouteuse. La troisième est celle qui a lieu au moyen d'un tissu cellulaire plus ou moins long: la cause de celle-ci lui est inconnue. Il ne pense pas, au reste, qu'on puisse vivre et vivre sain avec une adhérence complète et immédiate du cœur au péricarde ou des poumons à la plèvre. Je puis assurer que j'ai ouvert un grand nombre de sujets qui ne s'étaient jamais plaint d'aucun trouble dans la respiration ou la circulation, et qui n'en avaient présenté aucun signe dans leur maladie mortelle, quoiqu'il y eût adhérence intime et totale des poumons ou du cœur; et, pour ce qui regarde ce dernier organe en particulier, je suis très-porté à croire, d'après le nombre de cas de ce genre que j'ai rencontrés, que l'adhérence du cœur au péricarde ne trouble souvent rien l'exercice de ses fonctions. Il m'a paru seulement que la contraction des oreillettes devenait beaucoup plus obscure quand elles sont adhérentes au feuillet fibreux du péricarde."

The membrane which lines the heart and larger arteries is subject, independently of the two kinds of redness before mentioned, to ossification and cartilaginous indurations of certain parts of it; and to many other anomalous products, varying from simple coagulation of blood to polypi, tubercles, cysts, and even hydatids. We must refer the reader, who wishes to be familiarly acquainted with their appearances when he meets with them on dissection, to Laennec's work, in which he will find a most ample account of them. But we shall quote his account of the symptoms of the ossification and cartilaginous

laminous incrustations which affect the valves of the heart, because those symptoms differ as they are situated on one or other of these parts.

The symptoms of the ossification of the mitral valve will be found to vary in some degree from those which token ossification in the sigmoid valves. The chief token of ossification in the mitral valve is, according to M. Corvisart, "a peculiar rustling, difficult to describe, felt by the hand when applied on the precordial region." But, though hard to describe, it is (as Laennec observes) easy to recognize after it has once been observed, and Laennec compares it to the trembling of a cat when stroked. Corvisart adds, that the pulse is also very peculiarly fluttering; it is moreover weak, without hardness or fulness, and less irregular than in ossification of the aortic sigmoids, but more so than in the straitening of the orifices of the right cavities." To these symptoms are often added those which announce hypertrophy and dilatation of the left auricle and right cavities, because the obstacle which the blood meets with in passing from the auricle to the left ventricle must necessarily, after a certain time, produce these effects.

Laennec, however, was never able to detect this peculiar character of the pulse, even in those cases where the rustling or trembling in the precordial region was most evident; neither was the latter symptom evident to the touch except where the narrowing of the affected orifice was very considerable; for Laennec had often met with cases of extensive ossifications of the aortic and mitral valves, in which none of that rustling could be perceived.

In the ossification of the sigmoid valves, the pulse, says M. Corvisart, "may preserve a certain degree of hardness and stiffness, but never much of fulness nor of regularity." There will be strong and frequent palpitations; besides "that peculiar species of undulation, rustling, or purring," which has been already noticed in ossification of the mitral valve. We see, then, says Laennec, that "these symptoms are at length reduced to that peculiar sensation which is felt by the hand applied over the region of the heart, and which I call *frémissement cataire*; for the greater or less irregularity of the pulse cannot be considered as a pathognomonic symptom, such irregularity being met with, in every possible degree, in pericarditis, in the paroxysms of all diseases of the heart, even when no ossification is present, and also in diseases of the lungs where the heart is not affected.

"Since I began my observations with stethoscope, I have met with but three cases wherein the ossification of the mitral valve was so considerable as to constrict the orifice of the left ventricle to a degree sufficient to produce the *frémissement cataire*; and, as these patients did not die, I had not an opportunity of verifying the diagnosis by inspection. Nor have I met with that affection above three or four times, and that in a slight degree, in the aortic sigmoids. The rustling could not be discerned in these cases, which however were decided cases of ossification, and all verified by necrotomy. On a comparison of the few observations just given with those which I had previously made without the help of the stethoscope, I think I may present the following results as exact, or very nearly so.

"The ossification of the mitral and sigmoid valves does not produce irregularity in the circulation, nor can it be discovered by examination of the pulse or by applying the hand over the region of the heart, until it has reached such a degree as to have considerably narrowed the orifices of the left ventricle. The ossification of the mitral valve does not produce the rustling noise unless it is very considerable; and I never observed it in ossification of the sigmoids, though I have often found them so ossified as to have reduced the orifice of the aorta to one half or even one third of its natural size.

"A moderate degree of ossification in the mitral valve may be detected by the cylinder (the stethoscope), by the following symptoms: the sound which accompanies the

contraction of the auricle is more prolonged, more dull, yet somewhat rough like the stroke of a file upon wood; sometimes the sound resembles a blow or flap, but this when the induration is rather cartilaginous than bony. This peculiar sound, of a file or of a blow, is very evident even in those cases where the *frémissement* is not sensible to the touch; but it is more so when the latter is present, and has a degree of strength in proportion with it. The ossification of the aortic sigmoids may be detected by a similar sound during the contraction of the ventricle.

"A slight degree of ossification in the sigmoid and mitral valves produces neither of the sounds we have mentioned; but it may be detected, or suspected, from a sensation of hardness, roughness, or harshness, in the contraction of the ventricle or the auricle; and this sensation is clearly independent of the force of impulsion in these organs. The same symptoms would probably occur in slight ossification of the tricuspid valve and the pulmonary sigmoids. In these cases, as in dilatation and hypertrophy of the heart, an examination made (with the cylinder) alternately under the lower part of the sternum and between the cartilages of the sixth and seventh ribs, noticing also the state of the external jugular veins, will be always sufficient to decide in what part of the heart the disease is forming."

The arrangement of Dr. Good not giving us an opportunity of fixing the remaining diseases of the heart with nosological accuracy in their proper places, we shall treat of them here, even though they do not exactly tally with the generic characters of *Empresma*.

Like all other muscles, the heart increases, in regard both to the number and force of its fibres, during unusual exertion. It is thus that thickening and general enlargement of the heart follows extraordinary and long-continued exercise. We may remark, however, that an unusual volume of the heart is sometimes congenital. Exercise operates in a similar manner on one cavity of the heart: thus, if obstruction exist in the lungs, the increase of power acquired by the right ventricle requires also increased size of its contractile structure; and the same arises in the left ventricle from obstruction in the aorta. This increase of substance may be connected with particular circumstances which may alter its symptoms; that is to say, there is a difference in hypertrophy of one or that of both cavities. The symptoms of this disease are taken chiefly from Laennec. There is a difference between hypertrophy with diminution of the cavity, and hypertrophy with increased calibre, and so on. The varieties and symptoms of hypertrophy which follow are chiefly extracted from the work of Laennec, wherein he continually examines the opinions and definitions of Corvisart.

By *hypertrophy*, or "increase of nourishment," of the heart, we are to understand an increase of thickness in its muscular substance, and consequently of the sides of its ventricles, at the same time that these cavities are not increased in the same proportion; most commonly, indeed the cavities are diminished. This disease, which is not very common, seems to have eluded the researches of M^r. Corvisart; for he constantly supposes a thickening of the sides of the heart to be accompanied with a proportionate dilatation of its cavities. The thickening, in this case, is always accompanied by considerable increase in the consistence of the substance of that organ, unless the hypertrophy is combined with an affection described under the designation of "softening of the heart."

Hypertrophy may exist in one of the ventricles only, or in both at the same time. The auricles may be affected at the same time and in a similar manner; but most frequently they remain as thin as in their natural state, even when the corresponding ventricle has acquired an enormous thickness. In some few cases, the auricles alone may be affected with hypertrophy.

When the left ventricle is attacked with hypertrophy, the

the sides of this ventricle become thicker than in the natural or healthy state. "I have sometimes," says Laennec, "found the thickness to be full an inch at the base of the ventricle, which is double that of the healthy state: this thickness in general diminishes insensibly from the base to the apex of the ventricle, where it becomes almost nothing; but in other cases the apex partakes in the affection, and I have sometimes found it from two to four lines in thickness, which may be estimated at twice or four times its natural thickness." The fleshy columns and supporters of the valves acquire a thickness proportioned to the degree of hypertrophy. The interventricular partition, which in the present case seems to appertain to the left ventricle much more than to the right, participates greatly in the disease, though it never acquires a thickness equal to that of the rest of the sides of the ventricle. The muscular substance of the diseased ventricle becomes sometimes twice as hard as in the natural state, and of a more intense red colour. The cavity of the ventricle appears to have lost in capacity what the sides have gained in thickness. In a heart twice as large as the patient's fist, this cavity has been so small, that an almond with its shell could scarcely be squeezed into it. The right ventricle, now diminished in proportion as the left is enlarged, lies flat along the interventricular partition, and does not reach so low as the point of the heart: in these severe cases, it seems as it were imbedded in the substance of the sides of the left ventricle.

The following are the anatomical characters of hypertrophy of the right ventricle. The sides of this ventricle are thicker and harder than in the natural state: they sink or give way but little under the knife; their thickness is more uniform than that of the left ventricle, being indeed nearly the same throughout the whole length of the ventricle; it is, however, always rather more marked about the triglochin valve, and in that portion of the ventricle which forms the origin of the pulmonary artery. The fleshy columns and pillars are considerably increased in dimensions; and this circumstance, which is more evident than in hypertrophy of the left ventricle, is, together with the extraordinary hardness of the substance of the heart, most remarkable and decisive of an hypertrophy of the right ventricle, and most easy to detect on a first examination; for the absolute thickness of the sides of this ventricle is never very considerable; never, says Laennec, more than four or five lines.

Hypertrophy of the Left Ventricle.—This is the affection which appears to be described by M. Corvisart under the name of "active aneurism of the heart." The symptoms arising from a thickening of the left ventricle, besides those of diseases of the heart in general, are—a strong pulse, the beats being very perceptible to the patient, as well as to physician, by applying his hand over the region of the heart; the absence or diminution of the sound arising from percussion on the region of the heart; and the red, rather than blue, colour in the face. But these symptoms are not constant: and it is not uncommon for a considerable hypertrophy of the left ventricle to exist where scarcely any of them are present. The pulse, in particular, is a very deceitful guide; and it is perhaps as common to find it weak as strong, even in patients afflicted with a high degree of hypertrophy. Percussion; and the application of the hand over the region of the heart, are also fruitless modes of examination if the patient happens to be fat or dropsical. The use of the stethoscope, however, is here of more decided importance. The instrument being fixed between the cartilages of the fifth and sixth ribs of the sternum, the contraction of the left ventricle will produce a strong impulse, and a sound duller than ordinary; and the more considerable the disease, the more this sound is prolonged. The contraction of the auricle is very short, little sonorous, and therefore scarcely sensible in severe cases. The beatings of the heart are heard through a small extent only; most frequently they are scarcely audible under the left cla-

vicle and the top of the sternum; sometimes they are heard only where they may be felt, namely, between the cartilages of the fifth and seventh ribs. In this disorder, more than any other, the patient feels the beating of the heart almost continually; but he is not very subject to violent attacks of palpitation, unless from some extrinsic causes, as disturbance of the mind or violent exercise. Irregularities and intermittences of the palpitation are not common; and they are characterized by an increase in the impulse of the ventricles rather than by the noise they make.

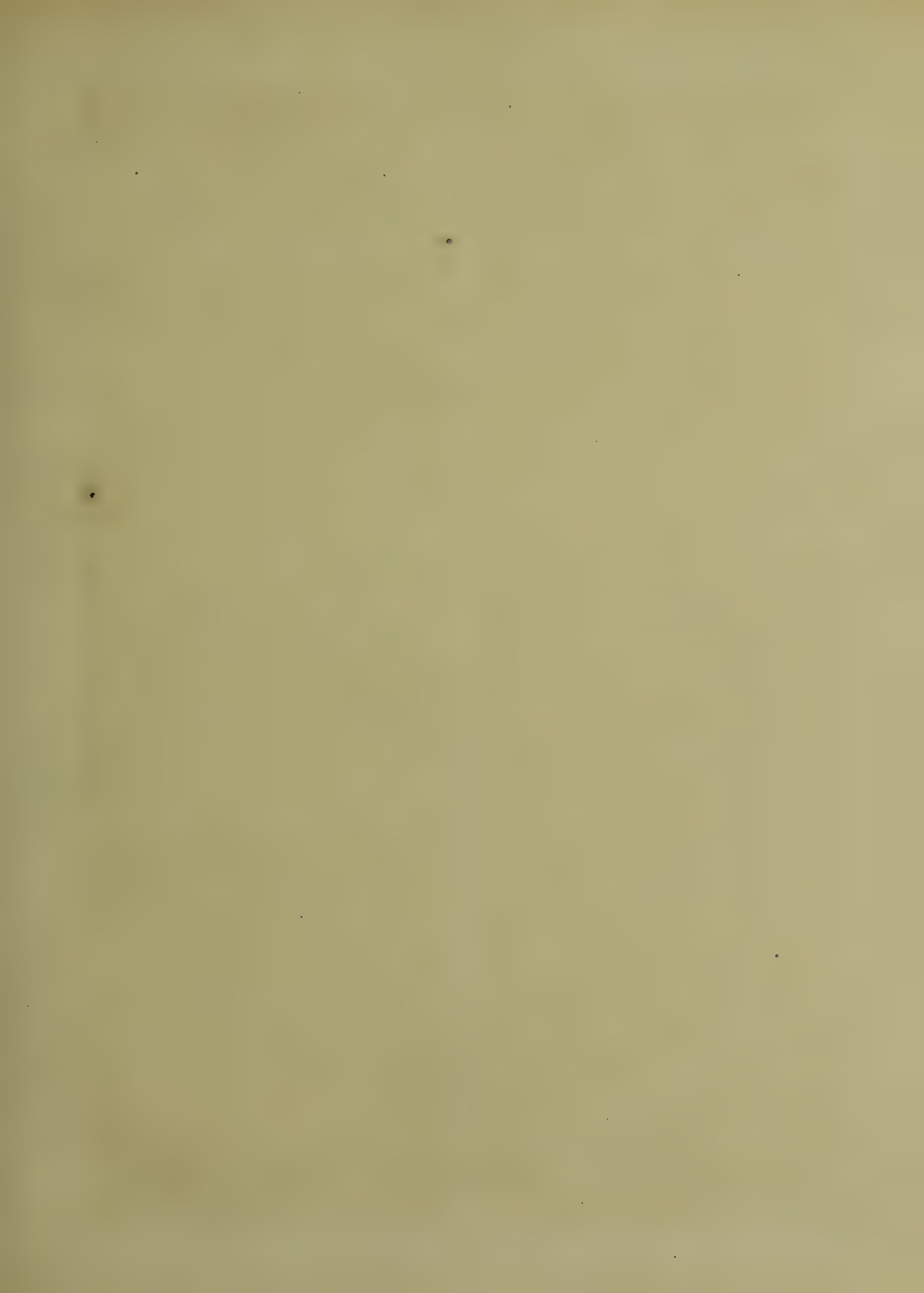
Hypertrophy of the Right Ventricle.—The symptoms in this case, according to M. Corvisart, differ from those of the preceding section chiefly by a greater difficulty of breathing and a darker colour of the face. He adds, "the beating of the heart being more evident on the right side of the breast may be considered as a symptom of the dilatation of the right ventricle; but this symptom, unless accompanied by others, is not much to be depended upon."

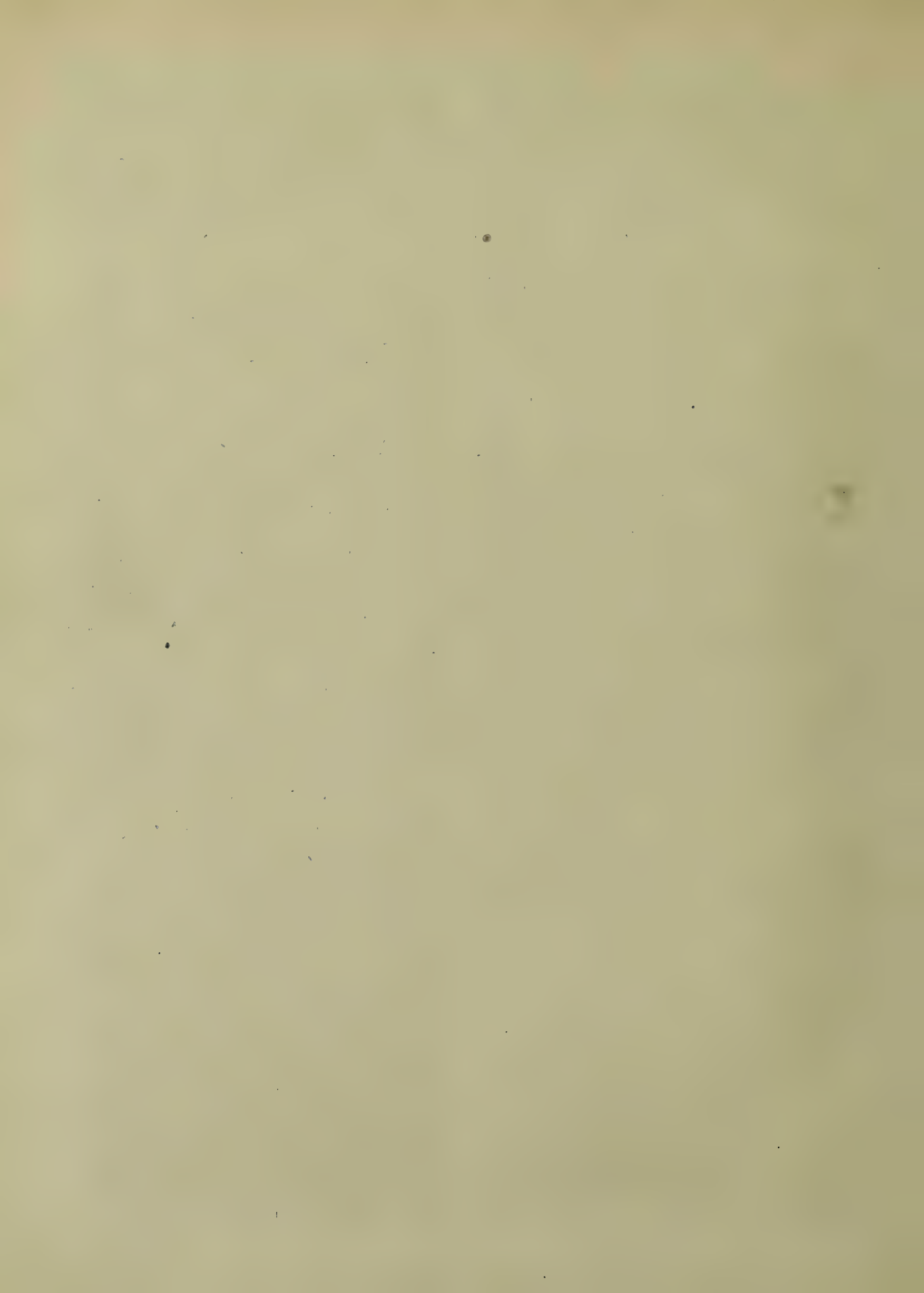
Lancisi had noted as a symptom of the aneurism of the right ventricle, the swelling of the external jugular veins, accompanied with pulsations analogous and isochronous to those of an artery. M. Corvisart rejects this symptom, relying upon what has, he says, "been observed in cases where the left cavities have been found dilated;" and moreover, "because such pulsation may be confounded with that of the carotids." But the observation of M. Laennec gave him a result which does not agree with the opinion of M. Corvisart. He says, "I constantly found this symptom in all the cases of hypertrophy of the right ventricle which came under my notice; and I never observed it in persons attacked with hypertrophy of the left ventricle, unless the same persons had a similar affection in the right also; and I think that person must have been a careless observer, or one who had never met with these jugular pulsations, who could confound them with the rising produced by the beatings of the carotids. These pulsations, moreover, are confined to the lower part of the jugular veins; and are scarcely sensible, or much less so, towards the middle of the neck, where the external jugular vein approaches the carotid, from which indeed it is separated only by the sterno-mastoid muscle. Sometimes, however, the reflux of the blood extends farther, and even beyond the jugular veins: Hunalduus had found it to extend, most decidedly, to the superficial veins of the arm. We may therefore consider this symptom, whenever it is present, as a good reason to suspect at least an hypertrophy of the right ventricle."

The contractions of the heart in hypertrophy of the right, as heard through the stethoscope, are of the same kind as in hypertrophy of the left ventricle, except that the sound from the contractions of the affected ventricle is less dull. But in hypertrophy of the right ventricle, the heart gives a stronger impulse under the lower part of the sternum than between the cartilages of the fifth and seventh ribs; while the contrary takes place, as we have seen, when the left ventricle is affected. In the generality of persons, the pulsations of the heart are equally audible in each of those places; but in others, who however have no appearance of disease of the heart, they are heard more clearly under the sternum than between the cartilages of the ribs; "and it has appeared to me," says Laennec, "that such a symptom has always coincided with, or denoted, a decided predisposition to hypertrophy or dilatation of the right ventricle."

Hypertrophy of both Ventricles.—When both ventricles are at once attacked with hypertrophy, they both descend to the point of the heart; and the symptoms consist of an union of those proper to the hypertrophy of each ventricle, but with almost-constant predominance of those which indicate the hypertrophy of the right ventricle.

Dilatation of the Ventricles.—A dilatation of the ventricles of the heart, which M. Corvisart denominates "passive





tation of the heart, it may perhaps be more dark in dilatation of the right than of the left cavities, and the same thing may be said of the lividity of the extremities; but I have often seen the countenance very pale and yellowish, and even the lips discoloured, in patients attacked with dilatation of the heart; and, on the other hand, hypertrophy with dilatation of the right cavities, has appeared to me to be the disease most frequently attended by intense lividity of the face and of the extremities, great flushing, frequent or considerable hæmoptysis, and a very considerable pouring-out of serous matter."

The only constant pathognomonic symptom of dilatation of the right ventricle, is the rushing noise of the heart to be heard under the lower part of the sternum, or in the space between the cartilages of the fifth and seventh ribs on the right side. The degree of dilatation is measured by the extent of the heart along which the sound can be heard, and according to a kind of progressive scale for which we must refer to Laennec, § 599.

The palpitations, in dilatation of the heart, consist chiefly in the frequency and noise of the contractions, not in the increase of their force, which indeed is often less than when the patient is in health. The irregularities of strength and of frequency, and the intermissions of the pulse, are not very common, though perhaps rather more so in these cases than in hypertrophy.

Dilatation combined with Hypertrophy of the Ventricles of the Heart.—The union of these affections is very common. It may exist in one of the ventricles, or in both together. In the latter case, the heart may become prodigiously enlarged, even to thrice the size of the patient's fist. This increase of size arises from the thickening of the parietes of the ventricles, together with a proportionable increase of their cavities; their muscular substance also becomes harder.

The symptoms of this affection are, of course, a combination of those of hypertrophy and of dilatation. The contractions of the ventricles are attended with great force, and a considerable noise; those of the auricles are sonorous also. The pulsations may be heard through a great extent; and sometimes, especially in thin people and in children, the impulsion is felt equally under the clavicles, in the ribs, and even a little in the left part of the back. "I once (says Laennec) heard and felt the contraction of the ventricles in the lower and posterior right part of the breast of a woman attacked with this malady; and, though she was a little woman, and not strong, the impulse and the sound were more intense in that place than I have met with them in the precordial region of a stout man."

The contractions of the ventricles, in this disease, may be readily felt on applying the hand over the region of the heart; for here, particularly during the moments of palpitation, the beats will be found quick, dry, strong, and sensibly resisting the hand. If we attentively notice the patient when he is most calm and undisturbed, it will be seen that his head, his limbs, and even the bed-clothes, are really shaken at every contraction of the heart. The beatings of the carotids, of the radials, and other superficial arteries, are often visible. If we press the region of the heart, that organ, according to the expression of M. Corvisart, "seems to be angry at the pressure, and to re-act more violently." These violent beatings, says he, when the disorder affects the left ventricle, are accompanied with a pulse which is frequent, strong, hard, vibrating, and hard to be stopped. "This character of the pulse is observed; indeed," says M. Laennec, "very frequently in hypertrophy with dilatation, as well as in simple hypertrophy of the left ventricle: but I cannot agree with M. Corvisart in regarding it as a symptom of active aneurism of the left ventricle; for, as I have elsewhere observed, we find very often a pulse small and weak, though otherwise regular, in men whose heart is very large and habitually beats with great violence; and vice versa.

"The palpitations which take place in the disease we are treating of, when examined by the help of the stethoscope, present the same characters with the habitual contractions described above, but with greater intensity; and they are seldom accompanied with irregularities, unless when death is near, and they become weaker. In these palpitations we sometimes observe, besides the impulse which the heart seems to give through a large surface, a stroke more dry, more sonorous, shorter though isochronous, and which appears to strike the parietes of the breast along a much smaller surface: this stroke is evidently produced by a quick and strong rising of the apex of the heart."

If the beatings of the heart are examined alternately right and left, i. e. under the lower part of the sternum and between the cartilages of the fifth and seventh ribs, on the left side, we may exactly know which is the affected ventricle, if only one, or whether both are affected, as most commonly happens. It will be useless to repeat the symptoms which have already been sufficiently detailed. Dilatation with hypertrophy of the ventricles of the heart being, of all affections of the heart, that in which it attains the largest size, it is also that wherein the absence of sound in the region of the heart is observed most frequently and to the greatest extent.

Dilatation of one ventricle with hypertrophy of the other, is a species of complication not very uncommon, though more so than the preceding. The symptoms are still a mixture of those of hypertrophy with those of dilatation, the one set predominating over the other according as the former affection is more or less intense than the latter.

Dilatation of the Auricles of the Heart.—This variety of disease very rarely occurs, and we shall therefore be brief in detailing the symptoms. Laennec says, that, whenever the auricles were considerably enlarged, whether from actual dilatation or from distention arising in extreme pain, he found that their contractions, instead of the brisk sound they produce in the natural state, which has been compared to opening and shutting of a valve, give out only a dull obtuse sound like a bad pair of bellows. He never could clearly discover that the contractions of the auricles gave any impulse, even when the thickness of their parietes was greatly increased.

Here Laennec recalls our attention to a negative symptom which he had already noticed in analysing the beatings of the heart; namely, that, "in many cases of hypertrophy of the ventricles, the contraction of the auricles can scarcely be distinguished by examination over the region of the heart; but if, instead of this, the cylinder be applied over the sternum or under the clavicles, the contractions may then be clearly distinguished, and often the sound is very considerable. This symptom, as I have before observed, seems to point out, that the affections of the auricles and those of the ventricles are totally distinct from each other; i. e. that the auricles are not affected by the maladies of the ventricles."

Softening of the heart, fatty coverings, atrophy, and cartilaginous and bony indurations, do not betray clear symptoms of their existence during life; or at least we are not sufficiently acquainted with these symptoms. A general cachectic habit is usually observed in most of these morbid states, which of course require the long continuance of disorder before they are established.

The treatment of hypertrophy or dilatation is seldom attended with success. The little that is to be done is comprised in a few words. The circulation must be kept below par, by repeated small bleedings, when the substance of the heart is any-where thickened; by a very low diet, when it is diminished or morbid. We should somewhat modify the latter rule, because it is often an object to nourish and support the body in a state of actual deprivation of some of the sanguineous elements. Occasionally counter-irritants, and a regular use of medicines acting mildly on the capillary system, are also proper. Perhaps much of the

the ill success which has attended this plan may be referred to the difficulty we have to make patients persevere in this very abtemperous regimen, and the prejudices we have to encounter against the innumerable bleedings which it is necessary to perform.

We cannot dismiss the subject of cardiac disease without reminding the practitioner of the occasional similarity which nervous irritations display to organic diseases of the heart. We refer the reader, for one source of this irritation, to *Dyspepsia*; but nervous excitement in other organs besides the stomach gives rise to syncope and palpitation; as for instance, in hysteria, pregnancy, pulsation in the epigastrium, &c. The diagnosis is founded on the permanency of organic malady, in contradistinction to the paroxysmal attack of irritative palpitation; for though, in the former case, the patient is better and worse, he is seldom wholly free from disease. The increase in the symptoms of organic disease when muscular exercise (particularly running up stairs) is used, furnishes another point of difference between this and nervous disorder. Some further and obvious indications of diagnosis are drawn from the appearance of the tongue, skin, general state of the pulse, &c.

g. *Empresma peritonitis*, inflammation of the peritoneum: pain and tenderness of the abdomen, especially in an erect posture; with little affection of the subjacent viscera, or abdominal walls. Dr. Good gives three varieties.

a. *P. propria*: the inflammation taking the general range of the peritoneum; pain extreme, often pungent, with little or no relief from stools.

β. *P. omentalis*: with a more sensible swelling in the region of the omentum.

γ. *P. mesenterica*: pain deeper seated, and more immediately in the mesenteric region; external tenderness less than in the preceding varieties.

Instead of these distinctions, we shall adopt the more common ones of acute and chronic peritonitis.

Acute Peritonitis generally commences, like other visceral inflammations, with chills and shiverings, though these are sometimes slight, and occasionally absent altogether. This cold stage has been known to continue two or three days before the reaction took place. After this, the pulse becomes quick and frequent; there is considerable thirst; and the general affection, called fever, ensues. These symptoms are attended from the very beginning with a sense of heat and pain in the abdomen, at first generally confined to some one part, though sometimes diffused over the whole of its surface. This pain is much increased by pressure; or, in other words, there is a great tenderness or soreness of the belly, and most invincible costiveness. The pulse is at least one hundred in a minute, and small; yet the tongue is not much altered at first from its natural appearance.

As it is of much importance to distinguish the tenderness on pressure, we should carefully watch the countenance of the patient while we press on the belly. In doing this, we should put both hands on the sides of the belly, and draw them as it were to the centre; this mode of pressure producing more pain than that which is made directly downwards. In the course of twenty-four hours the pain and tenderness on pressure increase, so that even the weight of the bed-clothes sometimes becomes intolerable, and the pulse rises to a hundred and twenty or thirty in a minute: at this time the tongue begins to be covered with a cream-coloured mucus, and, though it is moist, there is great thirst. A considerable degree of tension and swelling now takes place over the whole abdomen; and the patient finds most relief from pain by remaining motionless upon the back, with the knees in a small degree elevated. This position, while it throws the weight of the intestines to the spine, and therefore removes the pressure of them from the inflamed membrane, at the same time relaxes the abdominal muscles, and prevents any stricture over the outer surface of

the inflamed part. As these muscles are called into action by any attempt to rise or even to turn, so such a motion necessarily aggravates the acute pain; whence absolute rest, as just stated, is most easy to the patient. The patient, for the same reason, generally breathes by the intercostals, and very little by the diaphragm. The tension of the belly continues to increase to the sixth, seventh, or tenth, day; on one of which days, unless proper measures have been taken to remove the disease, the patient most commonly expires. Previous to death, the pain often suddenly ceases, and the inexperienced may conceive that this is an indication of amendment in the disease: but, if the symptoms be minutely examined, it is found that, at the same time, the pulse is sinking in strength and increasing in rapidity, that the strength of the patient is also sensibly diminished; the countenance collapses, cold clammy sweats break out, the extremities lose their vital warmth, and at length a laborious respiration manifests the concluding struggle of life.

But the symptoms above enumerated are often modified by age, constitution, season, and other circumstances. Thus, in some subjects, of feeble constitution and advanced age, peritonitis will creep on without fever, or even local pain—and yet the disorder will go on to complete disorganization of the peritonæum, or such an effusion of serous fluid as gives the complaint the character of ascites. In some subjects, the thickness of the muscles and parietes of the abdomen renders the pain of pressure scarcely perceptible. A favourable prognosis, however, is to be deduced from a gradual cessation of the pain, especially when it is accompanied by a diminution of tension and soreness, and when at the same time the pulse becomes fuller and less frequent, the skin less parched, soft, and moist, the respiration less laborious, and the countenance more open and expressive of ease.

Inflammation of the peritoneum may be distinguished from *colic* by the permanency of the pain, and the frequency of the pulse, as well as by the tenderness on pressure, even before any tension of the abdomen has taken place; and by the absence of any inclination to go to stool when the pain is severe, as well as by the undiminished suffering when an evacuation of the bowels is effected, either spontaneously or by medicine. It is not so easily distinguished from inflammation of the bowels, or *enteritis*. In this latter disease, however, there is obstinate constipation, and the pain is more acute, and not so much aggravated by external pressure; the stomach is also commonly affected with vomiting.

But these distinctions are by no means to be depended on; for, though we have the authority of Hunter for considering peritonitis a distinct affection, (Hunter on the Blood, 244.) yet it cannot be disputed that many cases do occur in which the organs invested by the peritonæum become implicated in its inflammatory disease; and, according as the peritonæum is inflamed, over the stomach or over the bowels, so *enteritis* or *gastritis* will ensue.

The predisposing causes of peritoneal inflammation are involved in obscurity. The exciting causes are various; compression of the abdominal viscera; blows or falls on that region; internal friction or pressure, as of the gravid uterus, extra-uterine conceptions, enlarged ovaries, or other morbid growths within the abdomen; violent and long-continued corporeal exertions, violent and repeated contractions of the abdominal muscles in vomiting; irregular circulations of the blood in the cold stages of intermittents, and strictures of the colon or rectum producing unnatural contortions and friction of the intestines on one another, are all causes of peritoneal inflammation.

But the grand causes are to be sought in the action of a cold atmosphere on the surface of the body; the application of wet or cold, especially to the feet, when the person is in a state of corporeal inaction; the neglect of changing wet clothes, the drinking of cold liquids when

the body is heated, and whatever suddenly interrupts certain functions of the system, as the suppression of perspiration, the lochia, and the menstrual discharge.

Over the causes which produce epidemic dispensations of this disease, the same veil of mystery hangs, that conceals from our view the etiology of other epidemics. M. Broussais saw the disease epidemic, and apparently contagious, among the French armies, in various parts of the continent; in Germany, Holland, and Italy. We have all seen puerperal peritonitis epidemic in our own country. The translation of rheumatic, arthritic, or erysipelatous, inflammations, from the joints or surface of the body to the interior tissues, is not to be overlooked.

Bayle, Broussais, and others, have noted the following morbid appearances after acute peritonitis. 1. Redness, thickenings, and even eschars, which penetrated to the mucous membrane of the peritoneum. 2. Solid exudations, in form of false membranes, lining the serous surface of the peritoneum, but without organization. 3. A liquid exudation, sometimes turbid, sometimes limpid or reddish: more or less of serous and purulent fluid was always found in the abdominal cavity, bathing the surface of the intestines. 4. M. Broussais also found red clots, sometimes thin, sometimes thick, spread over, in form of membrane, the peritoneum, which was reddened and thickened underneath. Blood itself has been found effused from the peritoneal lining of the abdomen, without any apparent breach of vessel or substance. Sphecclations were sometimes found.

In most cases where acute peritonitis has been cured, and the patient soon afterwards died of other diseases, adhesions were found, similar to those occasioned by pleurisy.

The nature of the disease being once ascertained, the method of cure will be obvious. As in all other acute inflammations, *blood-letting* from the system at large is the remedy to be principally depended upon, and should be resorted to at as early a period as possible. And this evacuation should be large, frequent, and early; for, if the inflammation be not mitigated in the space of twenty-four hours of active treatment, the event will generally be fatal. The chief guide in directing this operation must be the degree of pain expressed by the patient, particularly under the action of pressure: and even if this be much diminished, it may still be right to apply from ten to fifty leeches to the abdomen; and, as soon as these have done their office, its whole surface should be covered with a blister. It is to be distinctly understood, however, that neither leeches nor blistering should be trusted to, until some diminution of pain has actually been produced by the general bleeding. And farther, if it should happen that the pain is not diminished after the second bleeding, this operation must be repeated even to the fourth or fifth time, after intervals of three or four hours each. If it should be unequivocally manifest at any one of these bleedings, that the strength of the patient is inadequate to the loss of sixteen ounces, a smaller quantity may be taken away, and we may resort, at the same time, to the topical application of leeches and blisters. It seems, however, preferable to delay the application of a blister till the constitutional effects occasioned by the local inflammation are partly removed by the general bleeding, and till the disorder is thus reduced to a state more nearly approaching to a simple topical affection. For, by proceeding thus, the double advantage will be obtained, of applying the topical remedies at a period when their influence will be exerted with the greatest effect, and the practitioner moreover will not be deprived of the only means of ascertaining the variations of the disorder; namely, by pressure on the abdomen. The first symptom on which we may pronounce the recovery of the patient, is the ability of remaining in a sitting posture, after he had previously been confined to the back: this position of the body proves

that the inflamed peritoneum is now able to bear the weight of the bowels, which perhaps never takes place where the patient does not recover.

With respect to internal medicine, it is of secondary importance. Nevertheless it is necessary that the bowels should be kept open, and this should be effected with as little irritation as possible. For this purpose, castor-oil, or small doses of the sulphate of magnesia, may be administered with advantage; and emollient clysters may be injected, which, at the same time that they procure stools, will act as internal fomentations. Fomentations may be also applied externally to the abdomen, when the tenderness is sufficiently removed to admit of the pressure. It is scarcely necessary to add, that the strictest antiphlogistic system must be adopted, both in respect to diet and medicine.

It may be right to mention an irregularity in the complaint, which is apt to mislead the practitioner, and to deter him from resorting to those vigorous measures so essential to counteract the magnitude of the danger. There is now and then, at the very first attack, so great a degree of prostration of strength, accompanied likewise by a pulse scarcely perceptible at the wrist, as might induce us to consider the patient at the point of death, and unequal to undergo the treatment above recommended. There is also a spasmodic attack of pain, which remits. These appearances, however, seem to arise wholly from the inflammation extending to the peritoneal coat of the stomach and intestines. Here, as in different circumstances, the pain on pressure must be the criterion to determine our practice; and, if the pain should be found exquisite, no accidental symptom should lead us from trusting for relief chiefly to the lancet. Such a decision will soon be justified by a freedom in the action of the arterial system, the pulse becoming fuller and stronger, by an abatement of the languor and prostration of strength, and by a diminution of pain.

Among other powerful but unestablished measures we have to mention the injection of tobacco per ano, cold lotions to the belly, and the exhibition of oil of turpentine. Whether any further good can be attributed to the last medicine than what results from its purgative operation is not yet known.

The attack of the *chronic* inflammation of the peritoneum is very different from that of the acute species. It advances by degrees, manifesting itself only by occasional superficial pricking pains over the abdomen, without producing any inclination to go to stool: the pulse is somewhat accelerated, and the tongue (particularly in the morning) is slightly covered with white fur. There is also considerable thirst; yet there is no exacerbation of fever in the evening, nor any hectic flushes on the cheeks: on the contrary, the countenance is full of languor, and the face is pale and doughy.

In the early stages of the disease, the patient is capable of performing his ordinary avocations, and only complains, after fatigue, of a certain degree of tightness and pricking soreness across the abdomen, from one *os ilium* to the other. This state will continue, with little variation, for many months, during which the operations of the bowels will sometimes proceed naturally, though more commonly the patient is constive. There is no tension of the skin of the abdomen, as in the acute species; on the contrary, the skin and abdominal muscles are sometimes observed to sit loosely upon the peritoneum, which gives a sensation to the touch, as of a tight bandage underneath, over which the skin and muscles may be said (as it were) to play. The patient always complains more of the *tightness* than of the *pain*; and, as this tightness is much increased by any congestion in the intestines, the relief which he experiences from evacuating their contents, leads him to attribute his sensations to an habitual costiveness, for the removal of which evil all his endeavours are usually directed.

The progress of the affection is as follows: The bow-

els become more and more irregular in their action; the tenderness and swelling increase; the appetite fails; the pulse acquires greater velocity; the features look sharp and contracted; the countenance becomes pale or fallow; the lips parched and skinny; the tongue, sometimes of a bright colour, resembling what is seen in diabetes, at other times it is covered with a thick whitish mucus. The flesh and strength decay rapidly; and great emaciation takes place. The skin, except towards the last stage, is for the most part dry and scaly; the urine small in quantity, occasionally clear, more frequently otherwise. If a cough has not existed from the beginning, it is very apt to occur about this time; but this is by no means to be considered as a diagnostic symptom; its existence depending upon the spreading of the disease to the pleura, and the thoracic viscera. The feet sometimes swell towards the conclusion of the disease, but the swelling is often confined to one leg and thigh. At this period, if the examination of the abdomen be made with due care, it will be found to communicate to the touch the feeling occasioned by a solid tumour; the integuments and muscles not rolling upon the contained parts as in the first stage. But in some cases, where effusion is conjoined with the original and more important disease, a sense of fluctuation may be discovered. Very frequently the patients complain of a distressing feel of what they call a "broiling heat" at the stomach, the discharge of a tough ropy phlegm from the mouth, constant nausea, with violent retching and vomiting; and, in two cases, the matter brought up during several days before death was stercoraceous.

In the course of the complaint, the appetite is for the most part very bad; but the desire for liquids is insatiable, even though a consciousness exists that a large quantity cannot be swallowed without occasioning very great distress. When a feeling of sinking and emptiness prevails, the patient eagerly thinks of many articles that might allay his uneasiness; but the sight of them seldom fails to excite loathing and disgust. Should any sustenance be taken, it is either speedily rejected by vomiting, or it causes indescribable uneasiness. The patient rolls about in all directions, in vain seeking for some point where he may repose. Every action of the stomach or intestines comes to be performed with great pain. The passage of flatus upwards or downwards, the movements which take place before the evacuation of the bowels, all give rise to suffering. At times the pain is sharp and transient; at others heavy and obtuse. But a sense of weight is seldom absent; and it is more felt after vomiting or purging than before. One patient, (an infant,) in allusion to this symptom, used to put its hand on the abdomen, and exclaim piteously, "Oh! so heavy." Another said, that his bowels felt as if they were "tied up in a napkin." At another time he said, "they seemed to be in a mass;" and at a third, he declared, that if he had "a shot attached to every convulsion of his intestines, he could not suffer more than he did."

The above description, which is chiefly taken from Drs. Pemberton and Baron, is not applicable to all cases. Chronic peritonitis sometimes comes on so insidiously, that not the slightest suspicion could be entertained of its existence. We should therefore be careful, since this disease is often the sequel of acute peritonitis, not to remit too soon in our endeavours for the cure of the latter disease.

Exceptions to the symptom of constipation are more frequent in chronic than in acute peritonitis. In some cases, too, the appetite is preserved, and the digestion but little deranged; in which cases we may conclude, that the peritoneum reflected over the stomach is not very deeply involved in the disease. At other times, however, there is vomiting; but this is not to be considered a pathognomonic symptom of chronic peritonitis. Broussais mentions a sensation, as though a ball were rolling about in the abdomen, and sometimes approaching the throat;

this he attributes to the agglutination of the intestines, which form, with the gorged mesenteric glands, a round and mobile mass in the belly, often without any effused fluid.

In chronic peritonitis, the peritoneum acquires a greater degree of morbid thickening, and the inflammation appears to have penetrated to the different structures of the subjacent organs. The effusion is serous, limpid, or greenish, or reddish, with white purulent-looking filaments floating about. Occasionally we find spread over the whole extent of the peritoneum, or over some of the envelopes which it lends to various organs, a crop of granulations, pisiform, white, and not unlike certain miliary eruptions of the skin. Bayle, who examined these granulations very minutely, observes that, in a subject who presented them to a great extent, he could scrape them off very easily with the scalpel in many places, and that *there* the peritoneum underneath appeared perfectly found. In other parts, however, they could not be raised from the membrane without tearing it. Broussais has also related numerous cases where the peritoneum was larded, and immensely thickened, with crops of tubercles. "I have also (says the same author) seen a species of vesicles, similar to hydatids, formed of the most limpid serum, under a transparent sheet of membrane which had been elevated thereby."

Broussais observed, that thin men, of a lymphatic temperament, and who had been weakened by any disease, particularly by protracted intermittents, were the most subject to these tuberculated disorganizations of the peritoneum. The subjects opened by M. Laennec presented the following morbid appearances in the abdomen. On perforating the peritoneum, a quantity of gas rushed out, which had the odour of sulphurated hydrogen. The intestinal canal was found singularly conglomerated, and agglutinated into one mass, and partly covered by thickened and adherent epiploon. In some cases the intestines were entangled and twisted upon each other, and glued together by false membranes. The peritoneum itself was thickened, disorganized, and tuberculated, in the manner already described, with effusions of various kinds in the cavity of the abdomen. It is evident that these chronic disorganizations of the peritoneum cannot long exist without affecting the structure, and consequently the functions, of the various abdominal viscera. Hence the digestion, chylification, biliary secretion, &c. all become deranged, and present a complication of distressing phenomena. But not only is the disease propagated to the organs over which the peritoneum is spread; it is not seldom extended to the serous tissues of other cavities than that of the abdomen.

Before we proceed further, it will be right to inform our readers, that in following the common notion, that all the above-mentioned morbid products are the result of inflammation, we are opposed by some very respectable pathologists. Dr. Baron, in his clever work on the "Tuberculated Accretions of Serous Membranes," promulgates the idea, that morbid productions on the peritoneum are not always the consequence, but rather the cause, of inflammation of that membrane. He supposes that tubercles are formed from hydatids, (a notion entertained by Morgagni;) and that these substances owe their production to a diseased state of the absorbent rather than the vascular system. He details many facts drawn from the observance of the serophulous diathesis of the patients of chronic peritonitis, from the absence of symptoms of inflammation, till in all probability the morbid products were formed. He traces up the formation of large tumours and general agglutination of the intestines, from the smallest millet-sized hydatid; and he shows that the symptoms of derangement of the vascular system, when they exist, may easily be referred to the local stimulation of the tubercle or other morbid product. We are not able to decide the question, whether morbid accretions of the peritoneum *never* arise but from

inflammation; but we will venture to say, that in the majority of cases they do; and whoever reads Dr. Baron's cases attentively cannot fail to see strong evidence in favour of this notion. In that of Sarah Tandy, "the complaint is reported to have come on only four weeks ago, with tenderness and swelling of the belly, nausea, and vomiting." This patient did not die for a year, so that the appearances on dissection could furnish no evidence as to when the tuberculous affection had begun. In the case of the female, p. 36, the "affection began in the pleura;" and we do not generally observe metastasis in diseases of the absorbent system. Sarah Aldridge (p. 28.) is made to state, that she recollects the pain was "more severe at the commencement than it has been since;" her blood too "showed a strong buffy coat." The case of Browning (p. 41.) affords any thing but evidence of the origin of the disease from diseased absorbents; it came on after an operation for strangulated hernia, and was clearly connected with the sphacelation of the intestine which took place.

This disease is full of danger, as well from the slow insidious progress which it makes to undermine of itself the constitution, as from the accidents to which it exposes the patient during the long course of management required in its treatment. As another cause of danger, also, may be added, the want of resolution which we have so often to regret in patients during the cure of a chronic disease, where the advantages of the plan, from its gradual operation, are not so obvious to the senses. The symptoms which indicate recovery are, an abatement of the pricking pains of the abdomen, and a diminution of the frequency of the pulse to eighty in a minute: but even under these appearances, however favourable, a relapse is always to be dreaded.

We have little, and that little unsatisfactory, to say concerning the *treatment* of this disease. In the first place, bleeding must be so far had recourse to as to keep the circulation as much as possible below the standard of health. The bowels must be kept open by none but the mildest laxatives. The most perfect quietude; cauterization by means of continued blistering on the abdominal regions; nauseating medicines so carefully watched that they never may produce actual vomiting; are also to be resorted to. Under these measures we may cure this complaint, when it has existed two or three weeks only, if we are fortunate enough to be called in so soon. After that period our measures will somewhat change. We must endeavour to excite the absorbent system to remove the morbid productions; and for this purpose we should chiefly trust to rigid abstinence. We should also endeavour to increase the sensations of the skin, kidneys, &c. Mercurial medicines seem successful in advanced stages of the complaint. We should try them, however, in the early stage of the disease; in the latter, as there is little hope of promoting the absorption of a tubercle, we should naturally be averse to excite the irritation of fever which follows the introduction of mercury.

10. *Empresma gastritis*, (*Gastritis*, Cullen, &c.) inflammation of the stomach: burning pain at the pit of the stomach, increased by swallowing; rejection of every thing; hiccough; oppression and dejection of mind; fever a synchus. There are two varieties.

a. *Adhæsiva*: pain very acute; fever violent.

c. *Erythematica*: with an erythematous blush extending to and visible in the fauces; pain more moderate; fever less violent: pulse low and quick.

This species, under one of its two varieties, is found also as a symptom, occasionally, in aphtha, measles, small-pox, and other exanthems.

These terms which designate the varieties we use perhaps somewhat differently from Dr. Good, in the following sense. The first variety will designate that violent form of inflammation in which all the coats of the stomach, and probably its peritoneal covering, are affected. The second variety is gastritis affecting the mucous mem-

brane only. The first is almost always acute and violent, and is very rarely met with; the latter exhibits both an acute and chronic character, and is frequently observed. The first variety, which has long been known to medical authors, is thus described.

Gastritis *adhesiva* is characterized by an acute burning pain in the region of the stomach, which is suddenly increased, and vomiting at the same time excited by any thing whatever that is swallowed; it is also aggravated by external pressure. These symptoms are accompanied by a great degree of general fever; the pulse is extremely quick and small, and commonly hard. There is also extreme anxiety, and a greater depression of strength, and loss of power in all the functions of the body, than in the case of almost any other inflammation. In many instances there is a remarkable tendency to syncope; and there is frequent retching, and often hiccup, independently of any thing swallowed. In some instances, other symptoms are superadded to these. Thus, very early in the disease, a high delirium has sometimes come on, with great giddiness and loss of sight, from the sympathetic affection of the brain; considerable difficulty of breathing has also occurred, probably from the impossibility of depressing the diaphragm without compressing the stomach; convulsions of the muscles, and in some cases, although intense thirst was present, actual inability to drink has also taken place.

From the great sensibility of the stomach, and its sympathetic connexion with the other important organs of life, it must be obvious that inflammation of this viscus, by whatever causes produced, must occasion a great and often fatal derangement of the system. If the disease lasts long enough to follow the ordinary course of other inflammations, it may terminate like them by resolution, gangrene, or suppuration. Some writers have mentioned scirrhus and cancer of the stomach as among the sequelæ of gastritis; but Dr. Cullen has correctly stated that the scirrhosities, which are often discovered affecting the stomach, are seldom known to be the consequences of inflammation.

The *prognosis*, as to the tendency of the disease to one or other of these terminations, may be deduced from the following appearances and considerations. The disposition of the inflammation to cease, or to terminate by *resolution*, as it is called, may be known by the mild or moderate state of the symptoms; and by a gradual remission of them, in consequence of the action of the remedies employed in the course of the first few days of the disease. For in violent cases, where the remedies have not been applied sufficiently early or with sufficient vigour, gangrene comes on very rapidly. That a gangrene has begun, may be known from the sudden remission or cessation of the pain, while the pulse continues frequent, and at the same time becomes weaker; while other marks of the sinking of the powers of life in the whole system come on; such as frequent fainting, starting of the tendons, hiccup, a cadaverous appearance of the countenance, &c. *Suppuration* is a less frequent termination of gastritis, but occasionally occurs, and may be expected to take place, when the symptoms have continued, in a moderate degree, for more than one or two weeks; and especially when there is a considerable remission of the pain, while a sense of weight and anxiety still remains. When an abscess is formed, the frequency of the pulse is at first abated; but it soon again increases, and frequent cold shiverings, and marked exacerbations of heat and feverishness in the afternoon and evening, followed by night-sweats, come on; in other words, a hectic fever ensues. At length the disease commonly proves fatal, unless the abscess open into the cavity of the stomach, the pus be discharged by vomiting, and the ulcer soon heals. There are, indeed, some rare instances on record, in which the imposthume has burst externally, and not only the pus, but the alimentary matters swallowed, have passed out at the opening during the remainder of life. In such cases,

cases, a previous adhesion of the stomach with the peritoneum had taken place by means of the inflammatory process.

We are not acquainted with any particular *predisposition* to gastritis in the first instance; but, when the disease has once occurred, like most other inflammations, it leaves a tendency in the part affected to be more easily excited to inflammation again; and therefore, for a long time subsequent to recovery, the utmost caution, in regard to the use of irritating food and drink, is required. The exciting causes are, such matters applied to the stomach, as, from their sensible, chemical, or mechanical properties, occasion violent irritation to the stomach, or injure its texture; or the inflammation is produced by the extension of the disease from the neighbouring organs, or from distant parts; or frequently it follows suddenly on the second variety.

When inflammation of the stomach induces death, independently of suppuration or gangrene (which are not the most frequent terminations of the disease), sometimes the inflammation is found, upon dissection, to have spread over a considerable part, or perhaps the whole, of the inner membrane; but most commonly it occupies a smaller portion. The stomach upon the outside, at the inflamed part, shows a greater number of small vessels than usual, but is commonly not much crowded with them. On opening the stomach, it is found to be a little thicker at the inflamed part, the inner membrane is very red from the number of small florid vessels, and there are frequently spots of extravasated blood. Portions of the inner membrane are sometimes destroyed; and sometimes a thin layer of coagulable lymph is found thrown out upon a portion of the inner surface of the stomach. See Baillie's Morbid Anat. p. 138.

The treatment of acute gastritis will necessarily vary, according to the nature of the exciting cause, and to the degree and duration of the disease, and to the circumstance of its being simple or complicated. The leading indication however, and the general plan, must be the same as in all phlegmonic inflammations in their commencement; namely, to attempt the resolution of the disease by depletion, together with the strict observance of the antiphlogistic regimen. Large bleedings must be speedily employed, and repeated, if the urgency of the symptoms continue to require it, notwithstanding the smallness of the pulse, the general debility, and even disposition to fainting. For, after bleeding, it is observed that the pulse commonly becomes fuller, and the tendency to syncope is diminished. In an instance recorded in the Edinburgh Medical Essays, the patient was bled five times within seven hours, and was each time suddenly relieved from the acute pain; the pulse, before irregular, became regular; and the cold extremities became warm. In delicate constitutions, when the violence of the inflammation has been reduced, but not altogether removed, by bleeding, the application of leeches, or of cupping-glasses, after scarification, to the region of the stomach, may be occasionally resorted to with advantage. A large blister, applied to the pit of the stomach, after venesection, is likewise advantageous. In cases where a considerable irritability of the stomach, with little or no actual inflammation, exists, and gives rise to nausea and vomiting, the external agency of a blister is often the most effectual remedy. It is perhaps advisable to abstain altogether from taking any thing whatever into the stomach, whether by way of medicine or aliment, until the violence of the inflammation be somewhat subdued, since these matters at first will produce vomiting. In other cases, where any thing can be borne by the stomach, liquids of the very mildest kind, such as milk and water, thin gruel, &c. must be given, and in very small quantities at a time.

Opiates, in whatever manner exhibited, are very hurtful during the first days of inflammation of the stomach; but, when its violence has greatly abated, or the pain

and sickness recur at intervals only, opiates may be cautiously administered in clysters. It is remarkable, that, notwithstanding the usually nauseating effect of antimony, this substance may be given with advantage in gastritis, when combined with enough opium to restrain its action. Active purges should be exhibited in clysters till the bowels are fully opened.

We are particularly cautioned in this complaint to avoid a sudden return to full living, on account of the tendency of the disease to relapse.

The second variety differs in its symptoms, as it is chronic or acute. Its acute form is usually connected with general inflammation of all the coats of the stomach, and hence its symptoms are often the same; yet it undoubtedly may exist separately, since suppuration and gangrene of the stomach, lesions not very uncommon in the first variety, are scarcely ever met with in the acute gastric inflammations which are found in exanthems. Its causes are nearly similar to those of the other variety.

The first symptom of Gastritis erythematica is sometimes a violent vomiting resembling cholera morbus. The patient throws up every thing that he swallows; then bilious, mucous, or even sanguineous-looking matters; going very frequently to stool at the same time. Fever is a necessary accompaniment of this form of the disease. Sometimes gastritis declares itself without vomiting; but always with violent pyrexia, often unprecedented by a cold stage or shivering. The patient complains of a burning internal heat, and generally of a soreness in the pharynx. The tongue appears red and clean, and the thirst is considerable; the desire for cold acidulated drink is as great as the aversion for every other kind of liquid. If the phlogosis does not extend to the intestinal tube, there is constipation. If it reach the colon, there is diarrhoea with tenesmus. There is deep-seated pain in the epigastric, and especially in the right hypochondriac region, but not exasperated without a certain degree of pressure. This pain is sometimes lancinating, and accompanied by a sense of constriction. It manifestly diminishes after the patient has swallowed cold aqueous drink, especially if acidulated. Very often the vomiting ceases in a few days, although the other symptoms persist. At other times it continues, or supervenes in the course of the disease; and the patient is harassed with constant nausea, which appears to him to be occasioned by some globular body rising upwards, and painfully compressing the lower part of the chest. Each fit of vomiting is followed by a temporary ease of very short duration, the patient incessantly demanding emetics; a symptom still more common in peritoneal inflammation than in acute gastritis. The absolute impossibility, which the patient supposes, of swallowing any thing, appears referrible to the contracted and highly-irritable state of the upper orifice of the stomach. Such are the principal symptoms of acute gastritis; but several of them may be absent; even pain itself does not exist, in some cases, where the inflammation is most intense. Our diagnosis must therefore be assisted by a rigid observance of the sympathetic troubles produced by this phlogosed state of the mucous membranes of the digestive organs. The first class of these appertains to the head, affecting the functions of the senses, and the movements of the voluntary muscles. Head-ache may or may not exist. Aberrations of the intellect, corresponding with the moments of greatest suffering, are more steady in their appearance. "I have seen," says Broussais, "men as completely delirious as in fevers the most malignant, or phrenitis itself." In such cases too, we often see the conjunctiva red, the eye inflamed, and the features altered. In proportion as the disease advances, and the sufferings increase, the attention becomes estranged, till coma ensues. In the mean time we observe irregular contractions of the facial muscles, grinding of the teeth, subultus tendinum, and various convulsive movements. The patients throw off the bed-clothes when they are sensible, complaining

complaining that the internal heat which devours them is ten times more insupportable when the chest is covered. They try all kinds of positions in bed; sigh deeply; and show in their countenances the expression of intense agony. If they are questioned respecting the nature and seat of their pains, they apply the hand to the epigastric region, but cannot clearly describe their sufferings; the sense of internal burning is the only one which is distinct to them. We must therefore ground our diagnosis on the tout ensemble of the symptoms, and especially on the instantaneous relief produced by cooling drink.

In respect to the respiratory system, we observe sometimes a cough, with teasing pain; a glairy or mucous expectoration streaked with blood, or white, like that of peripneumony, at the period of resolution; a general pain in the chest; a laborious respiration in sanguineous subjects. The voice is often lost from a sympathetic paralysis of the laryngeal muscles. During the first days of acute gastritis, the pulse is full, hard, and often as strong as in pneumonia, particularly if the pectoral symptoms above mentioned are present; a proof of sanguineous plethora in the pulmonary parenchyma. In lighter shades of gastritis, and when the vital powers have been reduced by pain, the pulse is sharp, irregular, or even intermittent; towards the close of life, imperceptible. Heat of skin is considerable, during the violence of the acute stage. M. Broussais has always found it dry and harsh. The skin is cold when the disease is on the decline, and cannot be brought to a natural warmth when the disease is verging to a chronic state. The cutaneous secretions are suppressed; and the breath is fetid in a few days after the circulation becomes much increased.

Chronic Gastritis erythematica.—This may be a primitive affection, or the sequela of an acute attack. It is produced by the same causes as the above-mentioned form of the disease; but, from peculiarity of constitution, or force of cause, it is unaccompanied by those violent commotions in the system which arrest the attention of the other kind. The patient complains of pain across the base of the chest, deep-seated in the epigastric and hypochondriac regions; generally more considerable in the right side, and sometimes so high up as to be thought in the chest. This pain is constant and very troublesome; sometimes burning, lancinating, pricking, and confined to a very circumscribed spot, especially when the stomach contains any acrid or irritating substances. It is very frequently accompanied by a sense of constriction. Some patients complain of feeling as though a ball of large size were pressing against the diaphragm; others as if a bar were fixed across the stomach, preventing their swallowing food or drink. Of all these sensations, the lancinating and stinging pains are those which acquire the greatest degree of intensity. The others are so faint, that the patient seldom demands relief from them till the strength becomes considerably reduced.

The appetite always fails; and, when the disease exists in its greatest degree, there is a general abhorrence of food. When there is any remains of appetite, the digestion is quite imperfect. Aliments are usually thrown up soon after eating; especially if too much food, or food of a stimulating nature, have been swallowed. Those who, from a milder degree of the disease, or idiosyncrasy of stomach, do not vomit, are oppressed, during the gastric digestion, with a sense of load at the stomach, nausea, acid, corrosive, or fetid, eructations, rumination, and exasperation of the usual pain. There are some patients who only experience eructations, inquietude, and mental perturbation. The pulse rises a little, and the skin warms, during gastric digestion; but sink to their usual level when the digestive process is finished. For a considerable time the bowels are as costive as though a scirrhus of the pylorus existed; but ultimately, in the majority of cases, there is diarrhoea, with colic, tenesmus, and stools mixed with blood—a proof of the extension of the dis-

ease. Then the breath, and even the perspiration, exhale an odour manifestly stercoraceous.

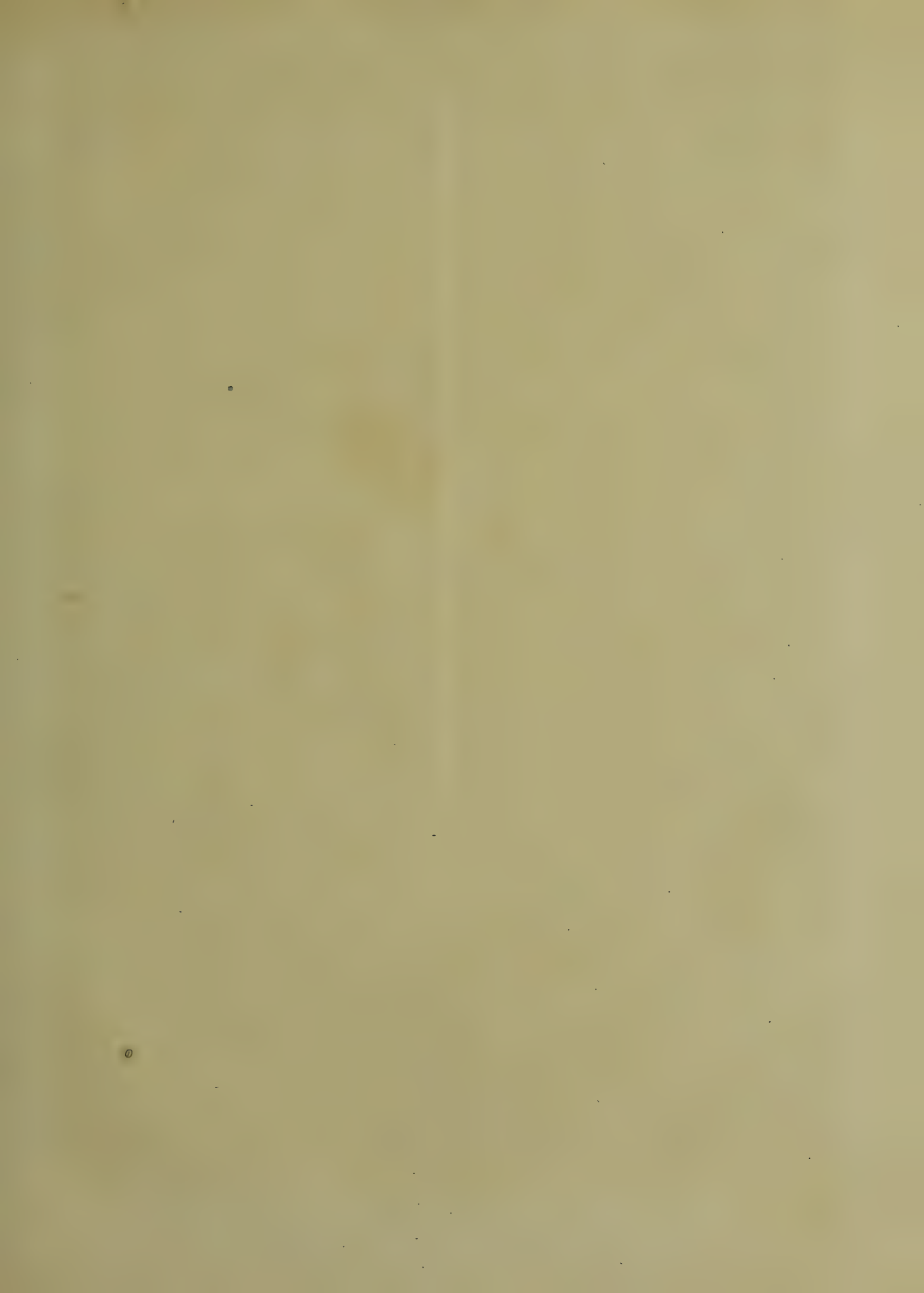
These sufferings, even when not very severe, are badly borne by the sick, who become dejected, impatient, taciturn, discontented, and not disposed to enter into the details of their feelings. They have an air of suffering in their countenance; the conjunctiva, lips, and cheeks, being of a deep red colour, verging towards that of tincture of logwood; as are also the tongue and whole interior of the mouth, excepting along the centre of the former, where a thin mucous list may be seen. In a few subjects the tongue is very much loaded, the breath offensive, and a bitter taste is experienced in the mouth; but these are exceptions, and the diagnosis must be drawn from the whole of the symptoms, not from any one exclusively.

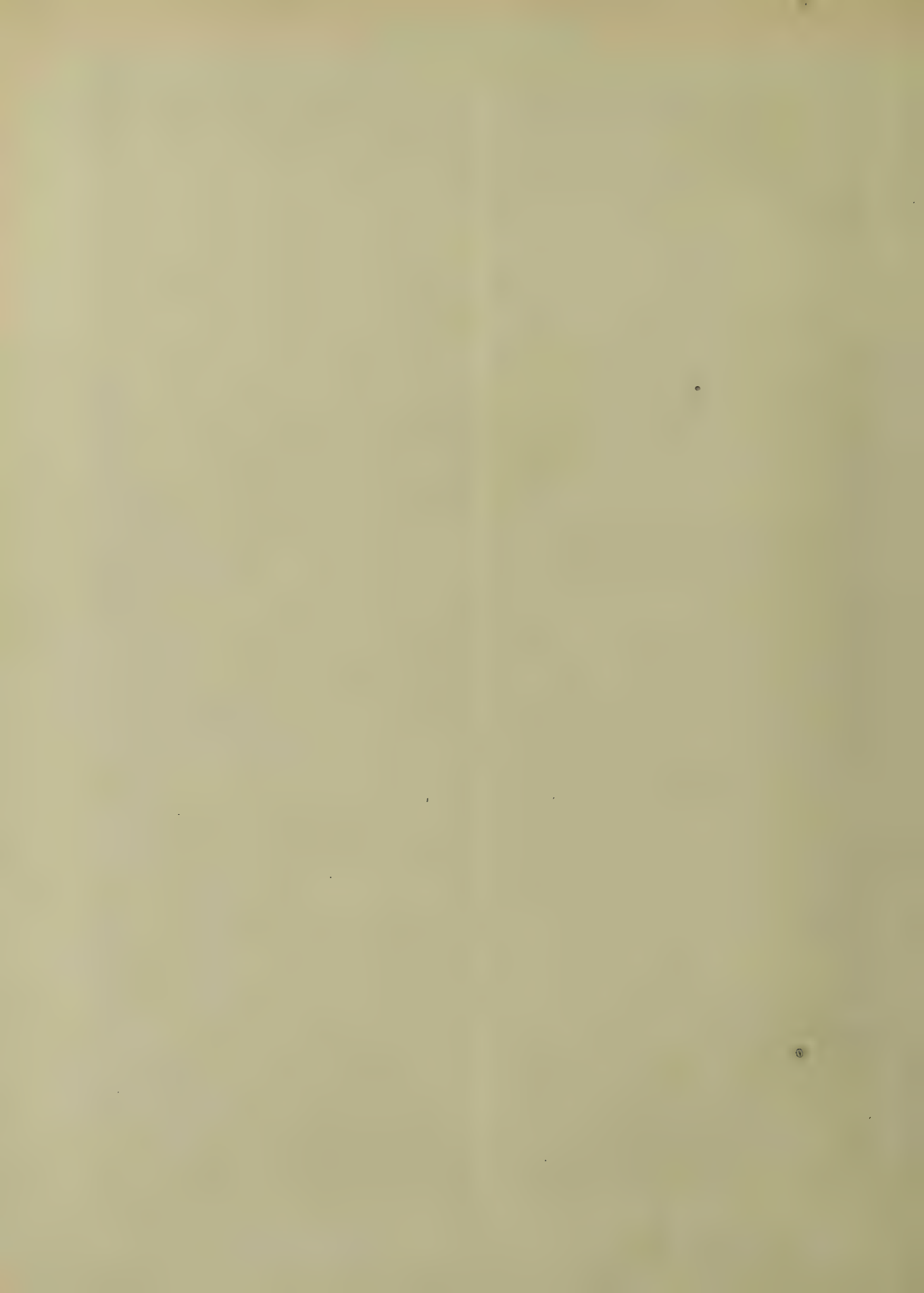
As soon as this disease is completely established, the cellular and adipose membrane becomes nearly absorbed, with but little diminution of the muscles; when these last are much extenuated, the disease is without hope. At all times, however, the skin is drawn tight over the muscles, sinking in in their interstices, so that it cannot be pinched up but with difficulty, even in those places where it is usually very relaxed. In no other species of marasmus has M. Broussais seen this degree of adhesion so strongly marked. This character of the skin, together with its colour, being a brown, inclining to yellow, offer two of the most constant diagnostic signs of chronic gastritis.

The pulmonary system suffers very little in this species of the disease, with the exception of a slight stomach-cough occasionally. Nor is the circulation so much influenced, at the beginning, as to evince any appreciable febrile movement. When the disease has made progress, then the pulse becomes hard and frequent; the skin, at the same time, being hot, and dry to the touch. There is always an evening exacerbation, with agitation and restlessness. If this train continues unchecked, prostration of strength soon ensues, and the gastritis, in fact, passes into the acute form. If, however, the febrile movement is only marked by frequency of pulse, without heat of skin; or if the patient only experiences a few hours of heat towards the evening, or during digestion; the malady may continue chronic. In all cases, if long protracted, the febrile symptoms subside, and the evening exacerbation ceases to be sensible. Then the skin becomes cold, and of the colour before described, with perceptible wasting of the body. When diarrhoea is added, the cessation of pyrexial phenomena is still more sudden and complete.

The treatment of the *acute* form of this variety is similar to that of Gastritis adhaesiva, except that cold lotions at first, and afterwards warm fomentations, are to be applied to the epigastrium instead of blisters; and local is to supersede in a great measure the general bleeding. Cooling acidulated drinks and effervescing draughts afford much gratification to the patient. Strong purges, even when nausea is not present, are extremely hurtful; and, upon the whole, the practitioner is to be careful not to give too much medicine.

As to the treatment of *chronic* gastritis of the mucous membrane, this must be regulated by somewhat similar indications. The patient must abstain from all animal food and all indigestible vegetable substances; thin gruel and cold drinks, as weak solutions of nitre, the occasional application of leeches and warm fomentation, with laxative clysters, forming the most approved remedies. This applies to chronic gastritis when it assumes the character of local pain and irritation, manifesting generally a *sense of burning at the pit of the stomach, redness of the fauces, and factor of the breath*. Another form of chronic gastritis, which supervenes to long-continued nervous irritation, has been mentioned under Dyspepsia, where it is described as constituting the second stage of that complaint.





complaint. Chronic erythematæ, or inflammation of the stomach, is no uncommon disease in this country, where the common practice of purging dyspeptic patients is frequently adopted in it, and tends materially to increase its violence.

11. *Empresna enteritis*, inflammation of the bowels: gripping pain in the belly, with tension, tenderness, and vomiting; fever *synochus*. This also has two varieties distinguished thus; that one affects all the coats of the bowels, and the other only its mucous membrane.

a. *E. adhæſiva*. Pain very acute; vomiting frequent; obstinate costiveness; fever violent.

When this disease attacks the small intestines, it is attended with many of the symptoms of inflammation of the stomach. There is acute pain situated in different parts of the abdomen, but generally about the umbilical region; it is constant, but liable to exacerbations from time to time, generally described as of a twisting kind. There is, in a marked degree, a painful expression of countenance and manner, and difficulty of respiration. The general surface is at first somewhat hot, but at length the countenance and extremities become shrunk, cold, and perhaps affected with cold perspiration, and lividity. The pulse is frequent and small. The tongue is moist, but not always free from load. The stomach usually rejects every article of food or of medicine. The bowels are moved with great difficulty, but generally with much relief. The abdomen in general becomes tumid and tense, and exceedingly tender under pressure.

An inflammation attacking the large intestines is distinguished by pain usually situated in the hypogastric and iliac regions, or on one or other side of the abdomen, and gradually becoming more general: this pain is at first, perhaps, of a violent or spasmodic character; afterwards it is fixed, constant, increased under pressure, restrains the movements of the body, and, in some degree, of respiration; and induces a state of continued and painful contraction of the features. The patient becomes restless, and throws the arms about. The surface is affected as in inflammation of the small intestines. The pulse is sometimes little accelerated, until the affection is advanced. The tongue is moist, and whitish or loaded. There is often little or no vomiting. The operation of purgative medicine is effective, but attended by an excruciating pain, characteristic of this disease. Sometimes the bladder seems to participate in this affection; and there is a constant desire, with ineffectual efforts, to void urine.

Enteritis is much disposed to terminate in gangrene, an occurrence indicated by a sudden remission of the pain, while, at the same time, the strength fails, the pulse sinks, the voice grows feeble, the countenance shrinks, and assumes even a cadaverous aspect; yet the distention of the belly is not diminished, but often increased. This tendency to terminate speedily in mortification constitutes the great danger of inflammation of the intestines. Sometimes the disease terminates in suppuration, which, though less rapidly fatal, most commonly wears out the patient's strength and life in a lingering manner; but sometimes this condition ends in recovery. The formation of pus is indicated in this disease, as in other internal inflammations, by the remission, but not total cessation, of the pain, and by the occurrence of frequent fits of rigor, and sometimes by a purulent discharge by stool. But the disease, especially when the aid of medicine is early and actively obtained, frequently terminates favourably, by resolution, as it is called; i. e. by a gradual diminution and cessation of the symptoms. If the pains abate gradually, and the tenderness and distention of the abdomen lessen, while the pulse becomes softer and fuller, natural evacuations of feculent matters are passed, and a free general perspiration breaks out, this favourable termination may be anticipated. Whereas, the continuance of the constipation and of the fixed pain, the increase of the sickness and vomiting, the occurrence of the symptoms just described as indicative of

gangrene, especially if accompanied with hiccup and cold sweats, are among the unfavourable prognostics.

The principal source of mistake into which the practitioner is likely to fall in treating this disease, is in confounding it with *colic*; a spasmodic disorder, which requires a treatment essentially different, but which nevertheless occasionally terminates in enteritis. The diagnostic symptoms of the two complaints have been already stated at length. See *Colica*, p. 149.

The exciting causes of enteritis are obstructions, in the bowels, which necessarily retain the feces, until these, by their quantity or quality, become extremely irritating, and excite inflammation; or irritating substances conveyed into the intestine, which, by their bulk, shape, or indigestibility, or by their chemical or specific acrimony, produce excitement there. Thus, the swallowing of hard kernels, seeds, or stones of fruit, of pieces of metal, &c. has often induced the disease; and the presence of *ſeybala*, or hardened feces, and of calculous concretions, operates partly by the immediate irritation which they occasion. Thus also, strong concentrated acids or alkalis, spirituous liquors, high-seasoned food in large quantities, drastic purgatives, worms, &c. in the intestinal canal, have excited inflammation in it in different instances. Hence the disease has sometimes been the immediate effect of repletion, or of a fit of intoxication: and even a mild cathartic, when the bowels were loaded with much hardened feces, which the medicine was incapable of removing, has, in some rare cases, produced inverted motion and *intus-fusception*, terminating in enteritis. A very common cause of inflammation in the bowels is the application of cold to the legs and feet, or to the abdomen itself, especially if sudden or long continued. Gout, rheumatism, erysipelas, or chronic eruptions, are sometimes followed by intestinal inflammation. It is also a symptom in hernia.

In the cure of enteritis, as in all other acute inflammatory diseases, the leading object is to remove the inflammation, from which all the other symptoms of the disease originate. This, though apparently an identical proposition, cannot be too strongly inculcated, in the treatment of enteritis; because the excessive constipation of the bowels, which, in common with the rest of the symptoms, is in general merely an effect of the inflammatory condition of the bowels in some part, is often attacked by the inattentive practitioner with active purgative medicines, as if it were the primary object, and the source of all the mischief. The inflammation is to be subdued by blood-letting, from a large orifice, to an extent which must be various according to the constitution of the patient, and the violence of the symptoms. This depletion may be aided in its effects by the application of leeches, and afterwards of a blister, to the abdomen; and by the strictest abstinence from all stimulating aliment. The blood-letting must be repeated in a short time, if the symptoms do not abate, and the strength of the patient is sufficient to support the evacuation; which can only be determined by the observation and experience of the practitioner. If the pulse should become fuller and less wiry after the operation, it will afford a strong reason for the repetition of it, should the continuance of other symptoms appear to require it. The warm bath may be resorted to with advantage.

It must be obvious, that before the inflammation of the intestines is lessened or removed by these measures, any additional irritation to the membranes, already in an acute state of sensibility, whether by the immediate stimulus of a cathartic medicine, or by the contents of the bowels being forced forwards to the inflamed part, must tend to aggravate the disorder, rather than to relieve it. In fact it is usually found, that purgatives, given by the mouth, are not successful, where this previous diminution of the inflammation has not been effected. And, when this has been accomplished, some of the milder purgatives; as the neutral salts, should first be administered.

the action of the intestines downwards being at the same time solicited by emollient clysters, which also contribute to the same relaxant purposes as the external fomentations. A purgative medicine has often been known to operate as soon as a blister, applied to the belly, began to rise, though it had not acted previously; and this observation is still more commonly verified, after a free evacuation by blood-letting.

Though it is not advisable to irritate the bowels by drastic purges, it is improper to allow constipation to continue in this complaint. Clysters therefore, and the following mode of purging, will be found useful. Five grains of calomel may be given with one of opium; and, an hour afterwards, a large dose of castor-oil. This will be retained on the stomach in consequence of the sedative operation of the calomel and opium; and the bowels will be opened without pain or irritation.

β. *E. erythematica*, exhibits various gradations of severity of danger. It has already been amply treated of under the heads of *Diarrhœa* and *Dysentery*.

12. *Empresma hepatitis*, inflammation of the liver. Tension, soreness, and pain, in the region of the liver; pain about the right shoulder; difficulty of lying on the left side. This species has two varieties.

α. *Hepatitis acuta*: the specific character decisive, and the symptoms clearly marked.

β. *H. chronica*: the specific character obscure, and the existence of the disease only to be suspected from an exposure to its causes, and an occasional recurrence of the pathognomonic symptoms accompanied with a slight degree of fever.

The causes of this disease are often obscure. Besides the usual ones of *Empresma*, we find hepatitis frequent and severe in situations where extreme heat, or extraordinary vicissitudes of heat and cold, are met with. The disease comes on with a sense of chilliness preceding pain in the right hypochondrium, sometimes dull, sometimes sharp, extending up to the clavicle and shoulder of that side most usually, which is much increased by pressing upon the part; and is accompanied with a cough, oppression of breathing, and difficulty of lying, except on the side affected; together with nausea and sickness. The intestines are generally inactive, and the stools show a deficiency of biliary secretion, or at least of any intermixture of it with them; the urine is of a deep saffron colour, and small in quantity; there is loss of appetite, great thirst, and costiveness, with a strong, hard, and frequent pulse, of from 90 to 100 in a minute, and sometimes intermitting; the skin is hot and dry at the same time, and the tongue covered with a white, and sometimes a yellowish, fur; and, when the disease has continued for some days, the skin and eyes often become tinged of a deep yellow.

The appearance of the blood is somewhat remarkable just before it coagulates, when, the red part falling to the bottom, and the buffy coat not yet being formed, it appears of a dull green colour. This is owing to the mixture of the yellow-coloured bile with the purple-coloured venous blood, as yellow and purple form green: the coagulable lymph contains none of the purple colour; therefore the buffy coat is not green, but yellow. The same appearances are observed in the blood of a person labouring under jaundice.

In hepatitis, as well as in other species of *Empresma*, we do not always find the symptoms of the same degree of violence as they are described in the definition: thus in some cases the fever is severe, in others it is scarcely perceptible: in some instances, the pain is very acute and violent; in others, collections of pus have been found after death, when no pain had been felt. When the pain is seated deep in the substance of the liver, as that possesses little sensibility, the pain is usually obtuse; but, when the surface is affected, it is acute, and apt to spread to the diaphragm and lungs, producing cough.

Many authors have made a distinction between the

symptoms that occur when the inflammation occupies the convex surface of the liver, and those that are present when the disease affects the concave. It is said, when great difficulty of breathing, and cough, accompany the pain in the region of the liver, that these symptoms indicate the inflammation to be seated in the superior or convex part; but, where the inflammation occupies the concave or inferior surface, which lies contiguous to the stomach and duodenum, there is more sickness and vomiting; and moreover, the pain is not so violent in that region of the organ as in the other instance. But these symptoms are not unequivocal.

Hepatitis, when it occurs in India, exhibits many anomalies which are very unusual in this climate. Dr. Johnson, in his well-known work on Tropical Climates, states, that in many cases, if we expect to find the pathognomonic symptoms of acute hepatitis, as it appears or is described in Europe, we shall be greatly deceived. "In comparatively few instances have I seen the violent rigors, high fever, hard, quick, and full, pulse, acute pain, &c. which we would naturally look for as preceding the destruction of such a large and important viscus."

It accords, however, with Dr. Johnson's experience, that such cases do occur during the first twelve or eighteen months after arriving in the country. He mentions the case of a young gentleman, who, despising all rules of temperance or precaution, ran about in the sun for some days at Malacca, indulging in all sorts of licentiousness or inebriety; and was seized, in a day or two afterwards, with rigors and heat alternating; succeeded in a few hours by pain in the right side, extending across the pit of the stomach, accompanied with some difficulty in respiration. He did not send for Dr. J. till twelve or fourteen hours after the attack. He had then high fever, hard quick pulse, great dyspnoea, a short cough, and the most excruciating pain in the region of the liver; and a flux soon terminated his life. But our author met with few cases in India so exquisitely marked with acute European symptoms as this. In general, he says, the disease makes its approach in a much more questionable shape, though equally pregnant with danger as the foregoing, and not seldom more rapid in its course. "A man comes to us, complaining of having a flux. He says he is frequently going to stool; that he is griped, but passes nothing but slime; that his stools are like water, or some such remark. It is ten to one if he mentions any other symptom at this time. But, if we come to interrogate him more closely, he will confess that he has had some soreness at the *pit of the stomach*, or perhaps in the right side. If we examine the part, a fulness will sometimes appear; if we press upon it, he starts back, or shrinks at least from the pressure. If we look into his countenance, besides a certain anxiety we shall observe a dark kind of sallowness in his cheeks, and a yellowish hue in his eyes. The latter is seldom absent in hepatic diseases, both in India and Europe. The temperature of the surface will probably not be much increased; but the skin will have a dry feel; his mouth will be clammy, and his tongue have a whitish or yellow fur towards the back part. His pulse, though neither hard nor very quick, will have an irritable throb, indicative of some internal affection. His urine, if inspected, which it always should, will be found to tinge the bottom and sides of the pot with a pink sediment, or turn very turbid a few hours after it is voided; and he will generally complain of some heat and scalding in making water. These are all the external marks we can perceive; and the few symptoms at the head of the list are all that the heedless soldier or sailor has noticed, or at least recorded. Happily for the patient, as well as his physician, the degree of violence in the bowel-complaint, where other symptoms are not conspicuous, will be almost always a sure index to the rapidity or danger of that in the liver. Whereas in those cases where the symptoms are of the violent or European cast, particularly pain, fever, and dyspnoea, the

the bowels are very frequently costive for the first few days of the complaint. If it is not early checked, it will frequently run on to suppuration, and then the chance of its pointing, or of the matter finding its way through ducts or adhesions, with ultimate recovery, is faint indeed. Other symptoms will occasionally arise in this disease, or accompany it from the beginning. Thus the fever is sometimes smart; the enlargement, hardness, or tenderness, of the part, more violent; the inability of lying on a particular side may be complained of; a short cough may attend; or that particular sensation in the acromion scapulæ may be noticed, though it is not very often that this last is present. These symptoms, and the duration of the complaint, will vary much. Indeed, the latter is very uncertain; as its continuance may be protracted to several weeks, without suppuration or organic derangement of vital importance following. This, then, is the hepatitis of India; and certainly there is no small dissimilarity in symptoms between it and the acute hepatitis of Europe. The flux, which may be termed the pathognomonic of the former is almost always wanting in the latter. The one (Indian) partakes more of inflammatory congestion and obstruction; the other of active inflammation, like that of the lungs, kidneys, &c."

The cure of the acute hepatitis, as it occurs in this country, may generally be effected by the usual cooling and depleting plan. Bleeding local and general, blisters over the region of the liver, brisk cathartics, and, when the violence of the disease abates, the exhibition of mercury in full doses, complete the list of measures this disease requires. In hot climates it will be necessary to push the mercury further, to begin with it earlier, and continue it longer, than is requisite in the hepatitis of this country. In the former situation, indeed, it is often necessary to administer calomel in scruple doses in the very onset of the disease; and bleeding need only be had recourse to as an auxiliary. This, however, we by no means intend to deny, that very extreme bleedings are sometimes required in Indian dysentery; but mercury is the chief dependance; this medicine must be pushed till it produces salivation, and its action kept up till all vestige of disease is extinct.

Acute hepatitis terminates when not cured, in suppuration or gangrene. In this country, however, more patients die of the inflammation itself than of its sequelæ. Suppuration is most common in hot climates. See *Aposfema hepaticum*, p. 230. But few cases are known of the occurrence of gangrene in the liver.

The second variety, or chronic inflammation of the liver, is a disease which is more common in this country than the acute; and is so insidious in its progress as to have sometimes advanced to complete disorganization, before its existence was suspected. In some measure, indeed, a similar observation applies to all the chronic derangements of the substance of the liver, which often excite no alarm, by the symptoms which might be expected to accompany them, until they are fully formed. The slight indisposition that occurs is attributed to indigestion, flatulence, or some other affection of the stomach; the pain of which the patient occasionally complains is falsely referred to that organ; and its continuance is so short, and the degree of it frequently so inconsiderable, as to demand but a slight attention. The relief obtained by eructation and the discharge of air also tends to confirm the opinion, that the seat of the disease is in the stomach: but this relief may be explained on the principle of removing the distention of the stomach, and so taking off the pressure of this organ from the liver.

While this slow inflammation and gradual obstruction is going on in the liver, the patient is subject to occasional pain in the right hypochondrium, extending to the scapulæ, or to the top of the shoulder; a quick pulse, an increase of heat alternating with chilly sensations, difficult breathing on quick motion, some difficulty of lying on the left side, flatulence, indigestion, acidity, costive-

ness; and, together with a gradual diminution of strength and flesh, he has a pale or fallow complexion. The complexion, indeed, of a person affected with chronic obstruction in the liver, although often not wearing the appearance of jaundice, yet has frequently a peculiar fallowness, or a dirty-greenish hue, which Dr. Darwin, from its resemblance to the colour of a full-grown silk-worm, has aptly, though pedantically, denominated *bombycinous*. The extent and duration of pains, Dr. Saunders observes, arising from disease of the liver, are so various, as frequently to deceive both the physician and patient; they extend to the shoulder, scapulæ, muscles of the neck, along the arm, even to the joints of the wrist. Every change of posture either relieves an old pain, or induces a new one, as does the mere bending of the body in any direction, or even extending the arms. The pains are greater in a supine than in an erect posture.

These symptoms, and some others which make their appearance in the more advanced stages, are sufficient to point out the existence of chronic disease in the liver: but it is to be regretted, that they are not peculiar to chronic inflammation of that organ. Professor Portal points out some difficulties in forming an accurate diagnosis between diseases of the liver and of some of the neighbouring organs, especially of the lungs. He says that, on the one hand, obstructions and congestions in the right lobe of the lungs, and the right cavity of the chest, sometimes occasion such an alteration in the situation of the liver, by pressing down the diaphragm, as to produce a suspicion of disease in it, by occasioning the appearance of a tumour in the right hypochondrium. He relates a case of this sort, in which he was deceived by this apparent tumour, in a patient who died of pulmonary consumption, where little or no expectoration took place: and he cautions practitioners not to be misled by such an appearance, which is common in all congestions of the chest. He affirms, too, that a degree of jaundice is occasionally produced, where the bile has free passage into the intestines, but is there detained, in consequence of mechanical impediments, as volvulus, strangulated hernia, accumulations of hardened feces, &c. when it is taken up by the lacteals, and enters the blood-vessels. On the other hand, he remarks, if we sometimes attribute diseases to the liver which have their seat elsewhere, there are other maladies, actually seated in the liver, which are frequently ascribed to other organs. Thus the contiguous viscera, such as the right kidney, the diaphragm, the lungs, the stomach, and the colon, are sometimes supposed to be affected with disease, which is seated exclusively in the liver. Many examples of this are to be found in the writings of Morgagni and Lieutaud. Mr. Portal relates two cases of severe and continued vomiting, connected with diseased liver, the first of which proved fatal; and the other was cured, in consequence of the lesson taught by the previous dissection. An enlargement of the liver was felt externally, with great tenderness in the epigastrium. See *Mem. de l'Acad. des Sciences*, Ann. 1777; or *Mem. sur plusieurs Maladies*, par Ant. Portal.

It would take up much space to detail the immense variety of organic lesions which are met with in the liver. Some of these have been clearly accompanied or preceded by chronic inflammation; in others, the coincidence of this action is doubtful. We shall not enter into any account of them, since we do not find that diagnostic symptoms, distinguishing one particular degeneration of structure from another, can be laid down; and, moreover, because no curative indications can be founded even on the slight history of symptoms with which pathologists have furnished us. Indeed hydatids, various kinds of tubercles, scirrhus, softening of the substance of the organ, adhesion of its surface with contiguous parts, and effusion from its investing membrane, often produced over the whole of the peritoneum, and giving rise to dropsy, are more rarely followed by death than the former lesions,

which

which are in fact almost always fatal. We should except, however, softening of the liver, which is often unattended with danger, or indeed indisposition.

The causes of this complaint are various, but the most frequent is indigestion. It is remarkable that organic alterations in the structure of the liver happen more frequently in drunkards than in those whose hepatic functions are deranged from other causes. The treatment of this has in some sort pre-occupied our pen while treating of Dyspepsia; it may be summed up in a few words. The adoption of measures which will ensure daily but moderate alvine discharges; a strict regulation of diet, which must be very sparing; otherwise, as the febrile symptoms are more clearly or more obscurely marked, leeching to the region of the liver or to the anus, or even general bleeding if the hardness of the pulse calls for it; and the cautious introduction of mercurial medicines, which may on some occasions be pushed to the extent of salivation; form the whole of the treatment. If mercury is expected to disagree with the constitution, or if, after being tried, it is found useless, the nitro-muriatic acid both offers a means of correcting hepatic derangement, pleasant in its modes of application, and often successful in its effect. We have anticipated a full account of the mode of applying it under the article NITRO-MURIATIC ACID, vol. xvii. p. 104.

In organic derangements of the liver, a regular and strict attention to what we call, for the sake of brevity, the dyspeptic treatment, with abstinent living, and, if no great nervousness be present, counter-irritation by means of an issue, offer the only means of palliation. The administration of mercury, so commonly resorted to, often aggravates the disease; that is, if the alteration of structure be of long standing; for, while nothing but coagulable lymph is effused in the interstices of the structure of the liver, salivation will undoubtedly be of much service.

13. *Empresma splenitis*, inflammation of the spleen: heat, fulness, and tenderness, in the region of the spleen; pain upon pressure.

The spleen is an organ which from its structure is liable to congestion, or accumulation of blood, before actual inflammation occurs. Thus in the earliest stage of the disorder, the organ is swelled from the passive state of its vessels, which receive a greater proportion of blood than they can return. No fever or pain accompanies this state, but leads to inflammation by the tension and irritation of the membranes that invest the spleen, a sense of fulness in the left epigastrium being the chief symptom.

In the second stage, the pulse becomes quicker, and it is long in convalescence before it is reduced to its natural standard. The increased pulse is produced by painful irritation at first, and next by the actual tension of the membranes, proceeding to inflammation and adhesion of the adjoining parts. The quickness of the pulse will assist in distinguishing the degree of progress of this disease; for it will be found, by reference to histories, that in a great proportion of cases there was no warning of the growing mischief in the earliest stage; and that painful affection of the left side existed in many other cases long before fever was induced, though these ended fatally. In the first stage the patient can lie upon the left side, but not upon the right. In the second stage it is impossible to lie on the side affected. The spasmodic action of the diaphragm is more likely to come on in the second stage, and may be much aggravated by stimulant treatment. There is no emaciation in the first stage of a morbid kind; nor any considerable emaciation in the second stage, notwithstanding the large and continued evacuations.

In the third and last stage of splenitis, emaciation is always an attending symptom, combined with hectic or slow fever, particularly in middle-aged and elderly people. In this third stage diarrhoea supervenes, as well as dysentery, and discharges of grumous and dark blood take

place, by vomiting and by stools: these discharges give temporary relief in many cases, and occur long before the final event.

The treatment of this complaint is similar to that of the other species of this genus. Bleeding must generally be the first step, to relieve the congestion of the portal system, and drastic cathartics for the same purposes. A derivation to the capillary system of the skin and muscular system must be attempted by antimonials and the warm bath; but, after the bleeding, our chief dependence must be on drastic cathartics. Mercurial remedies are of use if the spleen becomes permanently enlarged.

The Splenalgia of authors is usually a slight attack of this species with some small degree of fever. Parabsysma splenica, or ague-cake, is a frequent sequel of Splenalgia.

14. *Empresma nephritis*, inflammation of the kidneys: pain in the region of the kidneys and ureters; frequent micturition; vomiting; numbness of the thigh on the affected side; retraction of the testicle.

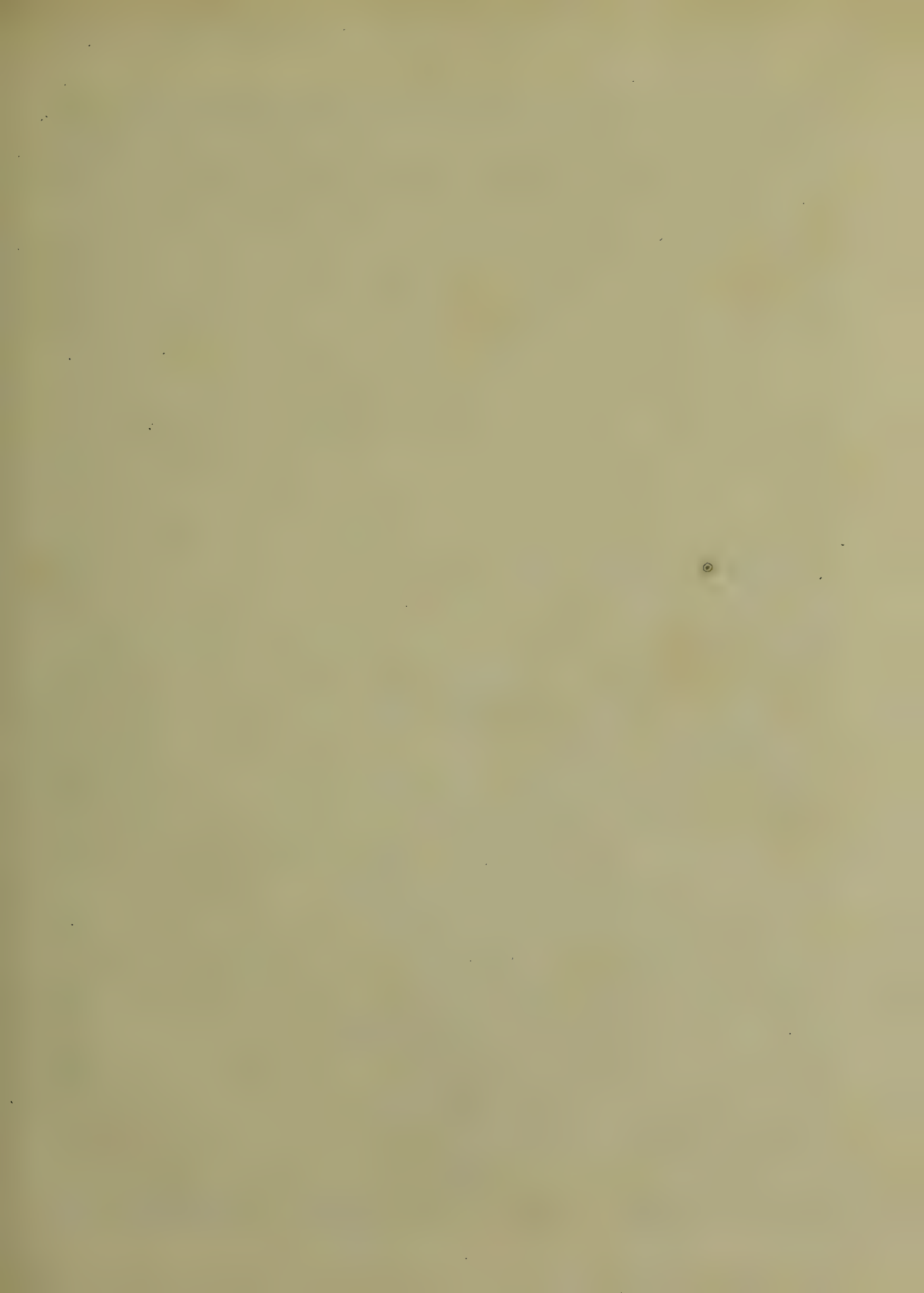
The chief difficulty, in this complaint, is to discover whether the inflammation be idiopathic, or whether it arise from the irritation of calculi. The following symptoms, drawn chiefly from Dr. Hall's work On Diagnosis, may afford some information as to this distinction:

Inflammation of the kidney is accompanied with a pain in the lumbar region, and often along the course of the ureter; a feeling of numbness of the thigh: retraction and pain of the testis; there is a frequent desire to void urine, which is usually high-coloured. There are generally nausea and vomiting; pain, and constipation of the bowels. There is more or less of an expression of pain in the countenance. The motions of the body are somewhat impeded; and certain motions are particularly painful; as bending to one side, or lifting up the thigh, especially if the hand be pressed forcibly on the knee at the same moment. Pressure between the short ribs and ilium, and sometimes along the course of the ureter, induces an aggravation of the pain. The general surface is soft, warm, but moist. The pulse is accelerated. Sometimes the pain and other symptoms affect one side only; sometimes both sides are affected.

Now, in calculus in the kidney or ureter, we find, at first, *paroxysms* of excruciating pain in the situation of the kidney or ureter, attended by great muscular contraction of the countenance; distortion of the body; holding and forcing of the breath; copious perspiration; a frequent desire of micturition, or retention of urine; the urine itself is sometimes mixed with a mucous, puriform, or bloody, fluid. The tongue and pulse are little affected. These paroxysms are apt to be induced by the violent motions of running, jumping, riding, &c. Sometimes the symptoms of calculus are more insidious and continued, and less violent. They are apt to assume the character of inflammation, or of chronic disease of the kidney.

When the kidney is chronically inflamed, it is attended with some of the symptoms just detailed, though in a minor degree. At length perhaps a tumor is perceptible on examination of the region of the kidney and of the space between the false ribs and the ilium. Disease of the kidney is distinguished from organic disease of most of the other abdominal viscera, by observing that the degree of emaciation is much less, or its progress much slower; especially when the latter affections are attended by an equal degree of suffering. There is generally paleness of the countenance and general surface. The pulse is accelerated.

The terminations of nephritis are the same as those of other inflammations. In slight cases, resolution may be obtained; but, where the disease has continued with considerable violence for upwards of a week, suppuration may be apprehended. It may happen however, that, when the disease has been kept down by proper remedies, resolution may take place as late as the fourteenth day. It is marked by the disappearance





pearance of the fever, and all the symptoms. Suppuration is marked by a remission of the pain, with rigors, throbbings, and hectic fever: in some cases, pus is discharged with the urine.

On the first coming-on of this complaint, a quantity of blood, proportionable to the severity of the pain, ought immediately to be taken away; and, if the first bleeding does not afford considerable relief, the operation should be repeated on the same day, or on the next at farthest. Topical bleeding with several leeches will also be proper.

After bleeding, fomentations and clysters may be used. The patient is at the same time to be directed to drink plentifully of barley-water, thin gruel, whey, or linseed or marsh-mallow tea. The intestines are to be emptied by gentle purgatives, as frequently as the occasion may require, in addition to emollient clysters. The warm bath, and diaphoretics, such as the saline medicine combined with nauseating doses of tartarised antimony, will at the same time be proper. When the febrile symptoms do not run high, and the inflammation has been subdued by a vigorous adoption of antiphlogistic remedies, opiates may be used occasionally to soothe the pain, and may be added to the clysters. In nephralgia, they are very important remedies, but not in pure nephritis.

In nephritis, the application of blisters is sometimes proper. The cantharides used in them should be infused in boiling water, a mode of proceeding which destroys their irritating operation on the kidneys. If this be not done, absorption of the blistering-fluid will do more harm than the local stimulus will do good. Towards the termination of the complaint, soda is a useful remedy. The reader will find some further useful remarks on this complaint under the articles NEPHRITIS and NEPHRALGIA, vol. xvi. p. 721.

15. *Empresma cystitis*, inflammation of the bladder: pain and swelling in the hypogastric region; discharge of urine painful or obstructed; tenesmus. It is often the result of wounds, sometimes of cantharides; more generally idiopathic.

The treatment of this disease is the same as that of nephritis, except that drinking large quantities of fluid must be forbidden. Purging clysters, containing opium, should be injected very freely in this complaint.

16. *Empresma hysteritis*, inflammation of the womb: pain, swelling, and tenderness, in the hypogastric region; heat, pain, and tenderness, of the os uteri; vomiting; pulse quick and low. It has two varieties.

α. *H. simplex*, the organ being unimpregnated: pain permanent, circumscribed, throbbing; fever a cauma.

β. *H. puerperarum*: pain less acute, less circumscribed; flow of urine difficult; fever a synochus or typhus.

The uterus is obviously liable to suffer inflammation, like the other viscera of the body, from the common causes of inflammatory disease. In the unimpregnated state, however, it is less frequently attacked by this disorder than most of the neighbouring organs; and seldom, if ever, is thus affected, except about the periods when its vessels are in a state of increased action, in consequence of the occurrence of the menstrual discharge. At these periods, when not only the uterine system, but the constitution in general, undergoes a slight erethism, or tendency to febrile excitement, sudden exposure to cold, violent exercise, great heats, or very high feeding, occasionally bring on inflammation in the womb; more especially in females of plethoric habit.

The most frequent cause of inflammation of the womb, however, is the irritation or injury which it is liable to suffer during the process of parturition or abortion; occurrences which arise from the pressure different parts of this organ necessarily undergo, during these processes. Perhaps the free discharge of the lochia, which is a necessary consequence of the separation of the placenta, answers the secondary purpose of local depletion, and thus, like a copious blood-letting instituted by art, pre-

vents the evils which would otherwise be very likely to ensue. This supposition is rendered farther probable, from the circumstance that inflammation of the uterus, when it comes on a few days after child-birth, is connected with a suppression of the lochial discharge.

Inflammation of the substance of the uterus usually begins about the second or third day after delivery; and is first known to exist by a sensation of pain felt at the lower part of the abdomen, which gradually increases in violence, and is distinguishable from after-pains by its constancy. *After-pains* are intermittent, like the pains of labour, depending, like them, upon contractions of the uterus; but the pain of *inflammation*, arising from the uninterrupted action of the vessels, is necessarily unremitting. The patient complains much of any pressure applied externally to the region of the uterus; and this organ feels larger than common under the hand, as well as much harder, resembling almost a stone in firmness. Marks of constitutional affection soon appear in the increase of heat over the whole body, a white and dry tongue, thirst, head-ache, a hard, full, and strong, pulse, (when the disease occurs in full habits,) and in all cases a frequency of pulse, from 100 to 120 strokes in a minute. Very soon after the attack, the stomach is usually affected with sickness and vomiting; but this symptom is not invariable. There is commonly a considerable degree of pain in the back, shooting round the pelvis to the groins, and down the thighs. Not only the lochial discharge, but also the secretion of milk, is for the most part interrupted. The bowels are variously affected; often costive in the commencement of the disease, but frequently very loose as it advances. The urine is commonly high-coloured, depositing sometimes a pink-coloured sediment, when it can be seen unmixed with the uterine discharges. It will sometimes be found, when the disease has communicated with the neck of the bladder, or when the uterus and bladder have suffered, that suppression of urine will take place, so that the catheter must be employed two or three times a-day to draw it off. On the other hand, we have seen the inflammation apparently extend to the kidneys, in which case no urine was secreted for two or three days; yet the patient experienced the sensation of an urgent desire to make water, probably from the inflammation being likewise communicated to the neck of the bladder. If the inflammation is very great, it may spread to the peritoneum, covering the fundus of the uterus, and lining the cavity of the belly; in which case there is great swelling, tension, and soreness of the belly; and other new symptoms arise, such as characterize the child-bed fever, described under PARTURITION, vol. xviii. p. 674.

In the progress of the disease, slight shiverings frequently take place at different times in the day, while the acuteness of the pain is diminished, and the face of the patient becomes occasionally flushed. These symptoms, together with the increased frequency and weakness of the pulse, mark the tendency of the disease either to suppuration, or to a dangerous failure of the vital powers. The tongue puts on a fiery red or scarlet appearance, which is often followed by aphthæ: symptoms of great general irritation succeed; and the patient is often cut off in a short time. Now and then, however, a flow of fetid lochia relieves these symptoms: the pulse becomes less frequent; the flushings more rarely appear; the tongue grows paler, and the skin, which before had been hot and dry, now relaxes and is cooler; a spontaneous diarrhœa comes on, and the patient recovers. The case is more favourable, and the prospect of recovery greater, where these shiverings and flushings have never occurred; but where the uterus gradually becomes softer, and less tender on pressure, the lochial discharge returns in its usual quality and quantity, and the secretion of milk begins again.

As the disease is often extended to different organs at the same time, and the symptoms must necessarily be

rather complicated, the functions of all the suffering organs being in some measure deranged, an accurate distinction of the seat of the disorder is often difficult. This, however, is the less important, as the same remedies will remove the inflammation, in whichever viscous it may occur. Of these, *blood-letting* is the most efficacious; and, even in the puerperal state, in strong constitutions, it should be early and liberally employed. In the disease happening independent of parturition, it cannot be omitted with safety, perhaps, under any circumstances; but the repetition of it must be determined by the constitution of the patient, the violence of the symptoms, and the effect of the previous bleeding on the disease. It may frequently be found necessary a second and a third time. A blister may be also applied to the belly, as near the seat of the pain as may be. Gentle cathartics, especially of the saline class, are evidently useful in the case of hysteritis *unconnected with child-birth*; but, in that which follows delivery, a course of purging is not to be recommended. It is always right, indeed, in the first instance, to procure two or three evacuations from the intestines; but, afterwards, it will generally be enough to preserve the regular motions of the bowels, by giving, from time to time, small quantities of castor-oil, or a little rhubarb mixed with some saline purgative. With a view of producing a determination to the skin, small doses of antimony and opium, or the compound powder of ipecacuanha, with the addition of a little rhubarb, and an occasional saline draught, may be usefully administered. In case a spontaneous diarrhoea should come on, it should not be interfered with, farther than taking care that the strength of the patient be not too much reduced by it. Except where there is reason to suspect the existence of undigested or indigestible aliment in the stomach, the action of vomiting should always be avoided; inasmuch as it constantly increases the pain by the agitation which it occasions, and the pressure made by the muscles of the abdomen on the inflamed uterus.

It is scarcely necessary to add, that, during the whole course of the disease, every thing heating and stimulating should be cautiously avoided; that the food of the patient should be of a mild and digestible nature, consisting of liquid and vegetable substances, and her drink watery and diluent, every sort of animal food, and of fermented and spirituous liquors, being abstained from.

As hysteria occurs, both connected with and independent of parturition, particularly in those who indulge in full diet, and in the use of heating food and liquors; so the prevention of the disease must depend principally upon temperance and regularity in this respect. In the former case, this end may be obtained by attention to the proper management of the woman both before and during labour. See Clarke's *Essays on the Management of Pregnancy and Labour*.

The terminations of this complaint are similar to those of the other species of this genus.

17. *Empresina orchitis*, (*Hernia humoralis*, and *Inflammatio testium*, of various authors.) Inflammation of the testicle. Pain and swelling of the testicle; nausea or vomiting; depression of spirits; pulse quick, somewhat low.

Subject to the same causes of inflammation as other organs of the body, the testicle is also extremely liable to an inflammation vicarious with the urethra. Hence its frequency in blenorrhoea. The first appearance of swelling is generally a soft pulpy fulness of the body of the testicle, which is tender to the touch; this increases to a hard swelling, accompanied with considerable pain. The epididymis, towards the lower end of the testicle, is generally the hardest part. The hardness and swelling, however, often pervade the whole of the epididymis. The spermatic cord, and especially the vas deferens, are often thickened, and sore to the touch. The spermatic veins sometimes become varicose. A pain in the loins, and sense of weakness there, and in the pelvis, are

other casual symptoms. Colicky pains; uneasiness in the stomach and bowels; flatulency; sickness, and even vomiting; are not unfrequent. The whole testicle is swelled, and not merely the epididymis, as has been asserted.

The treatment of orchitis, whether local or constitutional, does not differ essentially from that of phlegmon in general. The great sympathy between the stomach and the affected organ indicate the propriety of administering nauseating medicines; indeed the disease has been cured by vomiting when other means have failed.

Genus VIII. *Ophthalmia*, [from *οφθαλμος*, Gr. the eye.] Inflammation of the Eye. Generic characters—Pain and redness of the eye or its appendages; intolerance of light; flow of tears, or other excited secretion.

This Genus naturally follows the preceding, where inflammations of various parts are treated of; "and might perhaps," Dr. Good observes, "have been placed as a species under *Empresina*, in which case it should have been written *ophthalmitis*; but it has various characters peculiar to itself, as well in regard to its symptoms as to the seat of the organ, which seems to entitle it to the rank of a distinct genus;" and accordingly he has divided it into the following species and varieties.

1. *Ophthalmia taraxis*, (*Oph. membranarum*, *Cullen*.) Lachrymose ophthalmia. The tunics of the eye-ball chiefly inflamed: increased secretion of tears. Divided into,

a. *Mitis*: limited to the surface; pain passable, without head-ache.

β. *Acuta*: extending to the lower part of the eye-ball; sometimes commencing there; pain burning; tears perpetual and acrid; intolerable head-ache.

2. *Ophthalmia purulenta*, purulent ophthalmia; the internal surface of the palpebrae associating in the inflammation of the eye-ball; copious secretions of a purulent fluid. Four varieties.

a. *Epidemica*, Egyptian ophthalmia: epidemic; inflammation rapid and destructive; head-ache intolerable; often succeeded by delirium; at times remittent.

β. *Metastatica*: apparently produced by a sudden suppression of catarrhal, blenorrhoeic, or other morbid discharge. The secretion often greenish.

γ. *Intermittens*: marked by regular intermissions. Nearly allied to the epidemic variety. Probably produced by miasmata.

δ. *Infantum*, purulent ophthalmia of new-born children: appearing suddenly, and without any ostensible cause in new-born infants: the palpebrae florid, and peculiarly tumid.

3. *Ophthalmia glutinosa*, (*Ophthalmia tarsi*, *Cull.* *Pso-ropthalmia*, *Ware*.) The inflammation chiefly seated on the tarsus; its sebaceous glands secreting a viscous and acrid fluid that glues and ulcerates its edges, and irritates the eye.

4. *Ophthalmia chronica*, blear-eye, or lippitude; eye weak and weeping after the inflammation has ceased; redness permanent, increased by slight causes. Often a relic or sequel of the preceding species; and best relieved by gentle stimulants and astringents, as cold water, solutions of camphor, zinc, alum, lead; slight illations of French brandy, laudanum, or the nitric oxyd of mercury in the form of an ointment.

Sometimes the eye assumes a general redness without pain, which is the *Ophthalmia indolens* of certain writers.

For the causes and treatment of most of the above species and varieties, see the article *OPHTHALMIA*, vol. xvii. p. 528.

Genus IX. *Catarrhus*, [Gr. from *κατα*, and *ρηνω*, to flow.] Catarrh. This term, like *Ophthalmia*, has been used in various senses and latitudes by different authors. Schneider and Hoffman show a disposition to extend it to inflammation of mucous glands in general: and Parr, enticed by such an example, has made it a genus for including

cluding not only what is commonly understood by Catarrh, but the cough of old age, (which he admits is without febrile action,) croup, dysentery, phthisis, cystitis, leucorrhœa, gonorrhœa, and one or two others. This is the widest acceptance of the term: the narrowest is that of the old pathologists, who thus distinguished between three separate terms which are now regarded by many writers as synonymous:

Si fluit ad pectus, dicatur rheuma Catarrhus,
Ad fauces, Bronchus; ad nares, esto Coryza.

In the present system, the following are the generic characters—Inflammation of the mucous membranes of the fauces, often extending to the bronchia and frontal sinuses; infarction of the nostrils; sneezing, and for the most part a mucous expectoration or discharge from the nose. There are two species.

1. Catarrhus communis, common catarrh, or cold in the head; in which the fever is slight, and the mucous discharge considerable.

Of those slight inflammatory affections of the bronchiæ which are familiarly termed *colds*, and which spontaneously amend, we have already spoken of under *Bex humida*, p. 181. There are two remarkable varieties in acute catarrh.

The first, which commonly appears during sudden changes of the weather, generally attacks old people, and those of phlegmatic habits. This disease often deceives by the apparent mildness of its attack. The febrile symptoms are for the most part not severe at first, when compared with those which usually attend pneumonia. The patient does not complain of any fixed pain in the chest, but of considerable uneasiness and sense of straitness there. He is affected with oppression about the præcordia, and the countenance is expressive of anguish. To these symptoms are added lassitude over the whole body, and a general sense of weight and tension over the breast. The respiration is quick and laborious. By degrees, from the accumulation of the secretions, the air-cells are more and more filled up, and a wheezing noise comes on. Hoarseness, though not constantly, very frequently attends. The patient cannot take a deep inspiration with the accustomed freedom; and the attempt to do so often brings on considerable cough, or increases the pain, if any exists. Early in the disease, the dyspnoea is not aggravated by lying down, and no inconvenience arises from turning on either side; but, as it advances, the respiration is more free in the erect posture. In addition to this constant dyspnoea, there are cases in which the patient is subject three or four times in the day to an aggravation of the difficulty in breathing; a sudden constriction across the thorax is complained of, which sometimes, extending to the larynx, prevails to so great a degree as to prevent the voice from being articulate. In a short time, however, such exacerbations remit, and the complaint resumes its continued form.

A cough is one of the first symptoms, and from the commencement is usually accompanied with slight expectoration; though in some cases, in the first stage, there is an unnatural dryness of the parts. The expectoration is always scanty early in the disease, and does not at all relieve the cough: but in a few days, if the disorder begin to subside, a copious secretion takes place from the inflamed membrane, and a large quantity of thick viscid opaque mucus is spit up: after which the violence of the cough is usually diminished. The cough more frequently in this than in pneumonia excites vomiting: this usually relieves the bronchia of very considerable portions of dense white mucus, which are sometimes moulded into the shape of their ramifications. The patient is frequently seized with fits of coughing, which aggravate the dyspnoea; and, after their violence has subsided, he is left almost breathless, with a painful sensation of straitness across the chest. The urgency of

these symptoms, however, gradually abates if another fit of coughing do not disturb the respiration. Yet the dyspnoea, in many cases of this disease, is by no means proportional to the cough; the latter being often slight when the former is very severe. The cough and dyspnoea are generally relieved by a copious expectoration, and more especially in those who are in the decline of life, and have been frequently the subject of catarrhal affections.

In almost every instance the cough is accompanied with intolerable pain across the forehead, which may be sympathetic, or it may be an actual extension of the inflammation. In many cases drowsiness and vertigo attend. The tongue is often dry, and the whole mouth feels clammy from viscid mucus. The stomach refuses all sustenance, and the thirst is urgent. The urine is sometimes red and turbid, depositing no sediment; and sometimes it is scarcely changed from the natural state. The frequency of the pulse in the commencement of the disease is often not much increased; but during its progress some fulness and hardness are perceptible, though, in the more ordinary examples, fulness is more characteristic of this affection than hardness; and in those whose constitutions are impaired by hard drinking, who are frequently attacked with this disorder, the strength of the pulse is often rather diminished than increased. The temperature of the body is seldom much raised, although the face is often flushed, and evening paroxysms of heat and restlessness come on. The surface is generally dry, unless acted upon by diaphoretic remedies. The blood drawn is, for the most part, buffed.

The duration of this disease is uncertain. It is often difficult indeed to determine the precise time of its commencement, so insidious is the attack. In some cases it terminates in a few days, whilst in others it runs on to a much longer period. In the more violent cases, when the remedies employed do not check the progress of the symptoms, the pulse towards the seventh or eighth day becomes very quick and much weaker; occasional perspirations break out, the nails and lips assume a slightly livid hue, and the countenance is distressed, anxious, and pallid, with somewhat of a purple tinge. In fact, every symptom bespeaks obstruction in the air-passages. Soon afterwards the extremities grow cold, and the patient dies from suffocation.

In cases of a less dangerous nature than above alluded to, the more distressing symptoms begin in six or seven days to subside. The dyspnoea becomes less urgent, the cough is relieved, and a copious expectoration of a thick white matter takes place. But the recovery is always slow, the expectoration continuing for some time, and generally preventing the patient from recovering his strength for several weeks. Moreover, in this state of the disease the bronchial membrane is particularly liable to be affected by atmospheric changes; and thus, not unfrequently, a chronic affection of a very obstinate nature occurs. If, however, the weather be favourable, after the worst symptoms have been removed, the disease often gradually disappears; but not without leaving the mucous membrane much disposed to take on inflammatory action, which will almost inevitably occur when the exciting causes again operate in any considerable degree.

Inflammation of the bronchia, when it takes place in the strong and plethoric, usually produces symptoms of much greater severity. The pulse, the surface, and the tongue, all usually indicate violent reaction; but the countenance is often peculiarly pallid. The progress of this variety of catarrh is more rapid than that of the one before spoken of. Even in this, however, there is rarely a fixed pain in any part of the chest, but a distressing sense of *straitness* is constantly felt. The breathing is hurried and laborious, the patient only experiencing tolerable ease in an erect posture. A cough almost constantly attends, but it seldom bears any proportion to the dyspnoea; the former being often trifling when the latter

latter is very oppressive. Some expectoration is generally present in the early stage of this disease; and its cessation, if the dyspnoea continue, is one of the worst signs, as it shows that there is not strength enough remaining to enable the patient to relieve the chest from the matter which is poured out into the bronchia; it must consequently accumulate, and at length entirely fill them and the air-cells. The skin, says Dr. Badham, is dry, the tongue foul, and the urine high-coloured and scant; the pulse, however, varies in other respects, always hard, the necessity of immediate venesection for the most part obvious. Wheezing is not so constant an attendant on this as on the first variety. It is chiefly noticed towards the close of the disease.

The stage of excitement, if not met by appropriate remedies, almost invariably terminates in a corresponding sinking of all the powers of the system: dyspnoea takes place; the lips become purple; the pulse sinks, and is much increased in frequency; the heat of the surface is greatly diminished; the skin is generally damp, and the forehead and chin are bedewed with cold perspiration. Expectoration, from being copious, becomes scanty, or altogether ceases; and the patient dies from the accumulation of the secreted fluids in the air-cells. The violence of the dyspnoea, and the tendency of this disease to terminate fatally as early as the fifth or sixth day, form its most striking features.

When vigorous measures are early employed, so as to make an impression on the constitution, these dangerous symptoms occasionally give way. The dyspnoea abates; the constriction across the chest subsides; the cough is relieved, being attended with a more copious and thicker expectoration, which affords much relief. The pulse, the surface, and the tongue, become more natural, and by degrees the patient is free from present danger. The great debility which has been induced, however, necessarily renders recovery very slow; and frequently a tedious chronic disease ensues, which is characterised by a frequent and violent cough, and a very copious expectoration of a pus-like matter. The pulse is greatly quickened, the face is often flushed, particularly towards evening, and in the night partial perspirations break out. To these symptoms is sometimes added extreme emaciation: indeed almost all the symptoms of a supervening phthisis appear, and the death of the patient seems inevitable.

The discrimination of acute catarrhus from pneumonitis is difficult; and these diseases cannot be always distinguished from each other. The countenance is frequently pallid in catarrhus; it is not so in pneumonitis. The dyspnoea and anxiety are more distressing in the former disease than in the latter. Pain is seldom complained of in catarrhus, a diffused soreness of, or a peculiar *straitness* across, the chest being alone felt; whilst pain almost constantly attends pneumonia. When the expectoration commences, it is much more copious in inflammation of the bronchial membrane than in inflammation of the substance of the lungs or pleura. The wheezing noise which almost constantly attends some of the varieties of inflammation of the bronchia is seldom heard in that of the lungs. There is something also peculiar in the respiration in almost every instance of acute catarrhus; it is hurried and anxious; and, as Dr. Badham observes, the efforts of all the voluntary muscles that can be called into action render the oppressed state of the lungs sufficiently evident. The anxiety of countenance is much greater in catarrhus than in pneumonitis. The pulse is also different in bronchial inflammation; it is frequent, but it wants the hardness and vibration of the pleuritic pulse.

We may likewise be aided in forming our diagnosis by attending to the origin of the disease. If the pectoral attack succeed to rubeola, it is more than probable that it is seated in the bronchial membrane. In the same manner, if difficulty of breathing and cough come

on immediately after the disappearance of any affection of the skin, there is good ground to suspect that the mucous membrane lining the air-passages may be in a state of diseased action. In variola, when much difficulty of breathing occurs, it is probable that inflammation of the bronchial membrane may have taken place. In chronic ulceration of the trachea, when any sudden attacks of difficult breathing happen, and continue for some time, it is likely that the more minute air-passages are inflamed.

The danger from acute catarrh is different in the different varieties; but it is true of both, that, when the breathing is not very difficult, the cough not severe, the expectoration copious and free, and affording relief, the pulse regular and firm, and not very frequent or hard, and the strength not much reduced, the prognosis is not unfavourable. When the breathing is very high and laborious, a degree of coma supervenes, the nails become livid, and the voice is hoarse and indistinct: when the anxiety and sense of oppression are very great, and the pulse weak, quick, and fluttering, the fatal event will almost inevitably occur. There are few diseases, however, in which the prognosis is more uncertain than in the first variety of bronchitis. Our chief dependence may be placed on the state of the expectoration. Whenever the disease terminates favourably, the expectoration is free and copious; and, in proportion as the danger increases, the lungs become more oppressed, the expectoration scanty, and the debility great.

When bronchitis attacks the strong and plethoric, the danger is seldom equivocal. No inflammatory affection of the pulmonary organs is more frequently fatal than this. There is much to dread, even if vigorous measures be employed at an early period. The sense of constriction across the chest; the hurried, anxious, and laborious, breathing; the cough without much expectoration, the dry and hot skin, the foul tongue, the high-coloured urine, and the quick pulse, indicate the severity of the inflammation. The prognosis is more favourable if the breathing be relieved, and the cough be attended with a free expectoration. But it is much worse if we observe the slightest purple tinge on the cheeks, or if the expectoration diminish, and the breathing become more difficult; or, finally, if the eyes be rather prominent, and the patient alternately restless and lethargic. The case is altogether hopeless when the pulse becomes quite feeble and frequent; or when partial sweats break out, and the expectoration ceases. In young children, the prognosis is more unfavourable than at any other age.

Catarrhus arising from cutaneous diseases is more dangerous than that proceeding from cold.

The following is a concise view of the means we have recourse to for removing these inflammatory affections. To moderate the excitement of the sanguiferous system, general blood-letting, and abstinence from all stimulating food. To promote expectoration and perspiration, antimonial and saline medicines. To direct the fluids towards the surface, and relieve the congestion of the debilitated capillaries, local blood-letting, blisters, and rubefacients. The above means are general and local. Of those which are general, blood-letting is by far the most powerful for diminishing the excitement of the system; but it is not equally called for in all the varieties of bronchitis. In the first variety, where the disease occurs in phlegmatic habits, venesection is generally proper; but, on account of the peculiar habit of body, blood-letting should be employed with caution; for Sydenham observes, (and all succeeding writers have admitted the accuracy of his observation,) that patients of this description do not bear bleeding well. The abstraction of ten ounces of blood from the arm early in the disease, sometimes mitigates the symptoms; after which it is generally more safe to depend upon an attention to diet, proper expectorants, and local evacuations. The peculiar tendency to effusion often renders the treatment of this

Genus & certain objects to general ble-
ding on the ground of air Phlegmatia.

this affection difficult, as we are sometimes deterred by that cause from pursuing the blood-letting when the inflammatory symptoms indicate its employment. In this event we must subdue the inflammation by those means which are least likely to bring on effusion.

Catarrhus, however, as has been noticed in the history of the second variety, sometimes occurs in robust habits, and occasions violent symptoms. The stage of excitement in these cases is not of very long continuance; it soon terminates in irremediable debility. The short space of time that is allotted for the employment of antiphlogistic measures should not, therefore, be allowed to pass without an attempt to make a decided impression on the disease. With this view, blood-letting should be boldly employed. From twenty to thirty ounces of blood may be taken from the arm in severe cases, at the first blood-letting. It is difficult, however, to direct the precise quantity of blood. If the patient be of a strong habit, and the pulmonary symptoms urgent, and the febrile excitement considerable, we should allow it to flow till the pulse becomes weak, or the pulmonary symptoms are relieved. There are few cases which yield to one blood-letting. The propriety of its repetition should be determined by the degree of benefit obtained, the state of the symptoms, and the strength of the patient. Several blood-lettings are sometimes required. When the disease attacks children, general blood-letting should be employed as far as the strength will admit. In young children we cannot always obtain blood from the arm, but we may generally succeed in taking it from the jugular vein. This practice, indeed, is attended with some advantage, as the blood is taken from a vessel which pours its contents into the thorax. For the most part, however, children do not bear the loss of blood well; but in an attack which is menacing life there is no alternative: we must adopt powerful measures, for without them the disease will almost certainly prove fatal; but such is its dangerous character, that even by them its progress is often not arrested. When bronchitis is complicated with chronic disease of the trachea, blood-letting to any great extent cannot be always employed; for, if ulceration of the trachea have come on, the strength is often so much exhausted by it, that the loss of any considerable quantity of blood is not admissible. Even if relief be obtained by these means, it can only be temporary, unless the ulceration can be removed. Bronchitis arising from the irritation of external tumours requires venesection; but this remedy cannot give effectual relief, unless the cause producing the inflammation can be taken away.

Vomiting is sometimes productive of relief. Several writers have spoken very highly of the use of emetics in the second variety. The aqueous solution of tartarized antimony is in general, perhaps, the best remedy for producing it, although in young children it is not so safe as ipecacuanha, which, in them, should be consequently preferred. Independently of the action of the former as an emetic, it seldom fails to excite diaphoresis, which if general, and not too profuse, nor brought out by heating measures, is usually beneficial. But the good effects of antimonials are not confined to those cases in which we wish to produce vomiting. In every variety of acute catarrh, when there is much fever present, the greatest advantage is derived from the steady use of antimonials. They are indeed the most valuable of all medicines; for they not only, by exciting nausea and opening the pores of the skin, considerably lessen the febrile excitement, but, by their action on the exhalant vessels of the lungs, they promote expectoration, and thus lessen the inflammation of the mucous membrane. They may be given in combination with saline draughts and nitrate of potash. In the advanced stage, when the inflammation is nearly subdued, and the bronchia are clogged, ipecacuanha combined with squills is often of great service; but in all cases of this disease, as long as the excitement is con-

siderable, if antimonial remedies be excepted, no expectorants are so useful as mucilaginous mixtures.

In every variety of bronchitis, we should keep the body lax; and, in the commencement of the disease, should administer an active purgative, so as to clear the alimentary canal, and should afterwards so employ it as to keep up a due action of the bowels. Opium is prejudicial as long as there is much fever; but, when that declines, and irritability of the system and air-passages still prevails, it not unfrequently allays the cough, and calms the patient. But opiates must be employed with great caution, especially in the second variety; for when the secretion is copious, and the strength much reduced, they interrupt, for a time, the efforts to expectorate, and may thus prove fatal. In combination with small doses of calomel, opium may sometimes be exhibited at an earlier period of the disease. When conjoined, these remedies not only diminish the cough and assist expectoration, but seem likewise to regulate the secretions throughout the system. Diuretics have been advised by some writers of authority; and, when the disposition to effusion shows itself, the milder kinds may be of considerable service.

Local blood-letting should be used under the same restrictions as in other inflammations. Blisters are productive of great benefit after the excitement has been considerably relieved by blood-letting. But when catarrh occurs in phlegmatic habits, and assumes the form of peripneumonia notha, blistering may then be employed from the commencement, and is one of the remedies to be chiefly relied on in the cure of that variety. If the disease be obstinate, we should not be content with a small blister to the chest; one of sufficient size to cover the whole of its anterior part should be applied; and, if the symptoms do not readily yield, the discharge from the blistered part should be supported, or a succession of blisters employed.

The tepid bath often relieves this as well as other internal inflammations, by removing the tension of the surface, and exciting diaphoresis. Local fomentations and cataplasms may be also used: they bring a larger quantity of blood into the vessels of the integuments covering the thorax, and encourage a more copious effusion of blood from the leech-bites. When the disease becomes chronic, those remedies are to be had recourse to which we have mentioned when treating of chronic catarrh. See p. 183 of this article.

The dissections of catarrhal subjects manifest morbid appearances in the following order: Redness of the bronchial membrane; want of elasticity in the lungs; mucous, sanguineous, or purulent, exhalation; ulceration of the bronchiæ; a redness or other morbid appearance of the substance of the lungs, showing the existence of pneumonia and bronchitis.

Dropsy and a variety of dyspeptic ailments are sometimes associated with Catarrhus; the dropsy as a consequence, the dyspepsia a cause, of the pulmonary disease. Of the dyspeptic bronchitis we have spoken under Dyspepsia; and the latter does not require a distinct treatment. The same remark is applicable to the catarrhus attending measles and other exanthems.

2. Catarrhus epidemicus, the epidemic catarrh, or influenza: attack sudden; great heaviness over the eyes; fever strikingly depressive; epidemic.

For an excellent Chronological Table of the best writers upon the subject, from the Cronica Meteorologica Tuscana of 1323, by Targioni Tozzetti, to Saillant's Tableau des Epidemies catarrhales, see Cullen's Synopsis, in loco. It appears, from what can be gathered from these sources, that the influenza was a catarrh which was no otherwise distinguished from the first species than by its severity and its being contagious. Dogs and horses are subject to a violent and frequently fatal variety of this disease; in most instances highly contagious or epidemic. This, among ourselves, is vulgarly known by the name

of distemper, or snuffles: among nosologists it is called *Catarrhus caninus*. Dr. Good mentions it as a singular well-ascertained fact, that dogs which have undergone this catarrh never generate lyssa, or canine madness, though they are capable of receiving it by contagion.

Genus X. *Sparganosis*. [Gr. from *σπαργανω*, to tumefy and distend; *tumef. et distentus sum*, as rendered by Scapula.] Generic characters—Pale, tense, glabrous, diffused swelling of a limb; great tenderness; inflammation subcutaneous, unsuppurative. There is only one species.

Sparganosis puerperarum, milk-spread, or *Phlegmasia dolens*: occurring, for the most part, during the second or third week after child-birth; limited to the lower extremity, and chiefly to one side; exhibiting to the touch a feeling of numerous irregular prominences under the skin; fever a hectic.

This complaint is not always confined to the puerperal state, but it is so in most cases. In about twelve or fifteen days after delivery, the patient is seized with great pain in the groin of one side, accompanied with a considerable degree of fever, which however is seldom preceded by rigor or shivering. This part soon becomes affected with swelling and tension, which extend to the labium pudendi of the same side only, and down the inside of the thigh, to the ham, the leg, the foot, and the whole limb: the progress of the swelling is so quick, that in a day or two the limb becomes twice the size of the other, is moved with great difficulty, and is hot and exquisitely tender, but without any external appearances of inflammation. The pain in the groin is generally preceded by a pain in the small of the back, and sometimes by a pain at the bottom of the belly on the same side; the parts which suffer the most pain are the groin, the ham, and the back part of the leg about its middle. The pain indeed extends over the whole limb, in consequence of the sudden distention; but in a day or two it becomes less severe. The swelling is general and equal over the whole limb; it is much harder and firmer than in anasarca, in every stage of the disorder; it is not so cold, in any state of the disease, as the dropical swelling, nor so much diminished by a horizontal position, neither does it *pit* when pressed upon by the finger, nor does any water issue from it when it is punctured by means of a lancet. The surface is very smooth, shining, and pale; and is even and equal to the touch in every part, except where the conglobated glands are situated, which in some cases are knotty and hard, as in the groin, the ham, and about the middle of the leg at its back part.

This disorder generally comes on in the second or early in the third week after parturition. But Mr. White mentions one instance in which it commenced as early as twenty-four hours after delivery, and another as late as five weeks: but these are rare and extreme occurrences. The disease subsides in the following order: first the pain and swelling of the groin and labium pudendi, begin to remit, next those of the thigh, and lastly those of the leg.

The fever in some patients subsides in two or three weeks, in others it continues six or eight weeks, attended with quick pulse and hectic symptoms. The disease sometimes attacks both extremities; but this rarely happens, perhaps not in one case in ten. After the disorder has existed a week or two, it is not uncommon for the found leg to swell towards evening, and become oedematous; but then the groin and thigh are not affected on that side, and the leg is much softer to the touch than the other, and pits when pressed upon by the finger. Mr. White (*Inquiry into the Nature and Cause of that Swelling in one or both of the Lower Extremities, which sometimes happens to Lying-in Women, 1784*), affirms, that he has never known it to suppurate or prove fatal, or to be followed by any material inconvenience, after a few months were elapsed, except a little swelling of the leg after fatigue, particularly after walking.

The causes of this disease are not very obvious. It attacks women who are in full strength, and those who are reduced by flooding; those who have a moderate discharge of the lochia, and those who have a small or a large quantity; those who give suck and those who do not, whether their breasts be drawn or not, and whether they have a great deal or little milk. It attacks women in whatever position they have been delivered; but of those who were delivered on the side, it appears that the greater number were affected on that side in which they lay at the time of delivery. It attacks women of all ranks and of different habits, both the rich and the poor; the most healthful, as well as those who have laboured under chronic diseases: the strong and the weak, the lean and the corpulent; the sedentary and the active; the young and the middle-aged; after the first or any other labour, and whether the labour be natural or preternatural. It happens at all seasons of the year indiscriminately; and in the country as well as in large towns. It never attacks either of the arms, or other parts of the body; and, though it sometimes occurs in both the lower extremities, in the same or in different lyings-in, it never attacks the same limb more than once.

The complaint seems to consist of an inflammation seated in the muscles, cellular membrane, and interior surface of the skin, which produces a rapid effusion of serum and coagulable lymph from the exhalants into the cellular membrane of the limb. (Dr. Hull, in his learned treatise on *Phlegmasia dolens*, divides the disease into three stages; and treats the first, or inflammatory, stage, upon antiphlogistic principles, applying leeches and blisters to moderate the local action; and emollient fomentations, liniments, and ointments, to relieve the tension of the skin. The second stage does not require or bear evacuations; but the other parts of the antiphlogistic treatment, such as rest, the removal of irritations, gentle diaphoretics and sedatives, the warm bath, &c. must be continued; and the topical affection is to be remedied by gently stimulating liniments. The third, or athenic, period, requires the administration of tonics and stimulants, and exercise, especially in a carriage; while at the same time the topical affection must be treated by the application of a tight bandage, by the cold bath, or cold water dashed on the limb, and by remedies which may increase the action of the absorbents, such as blisters, friction, heat, electricity, &c. and by the internal medicines which excite absorption, such as mercury, digitalis, alkalies, &c. These remedies, particularly the evacuations, will of course be regulated according to the vigour and habit of the patient.

Genus XI. *Arthrosis*, [Gr. from *αρθρον*, a joint.] Articular Inflammation, or Joint-ache. Generic characters—Inflammation mostly confined to the joints, severely painful; occasionally extending to the surrounding muscles. This genus contains four species, including gout, rheumatism, &c.

The nature of neither gout nor rheumatism is precisely known. The capsules of joints, the sheaths of tendons, and indeed of the tunica propria muscularum, appear to be the parts chiefly affected; and it seems also, that inflammation is the affection in question. The diseases, however, of rheumatism and gout vary in their antecedent and concomitant symptoms, and also in regard to the morbid depositions to which they give rise. It does not seem clear, however, that either of these diseases is unconnected with constitutional malady; because arterial inflammation of the membranes of the joints is not always attended with the symptoms of gout and rheumatism. The connexion of gout and indigestion has been long observed; and, from all we have been able to gather, this connexion has been almost invariable. The disease has, in the majority of cases, attacked plethoric and intemperate persons; and even the exceptions which have happened have always presented patients, who

who from mental exertions; from hereditary predisposition, or from some other of the numerous causes of indigestion, have had the abdominal viscera disordered. In speaking of Dyspepsia, we have before stated, that it was capable of producing nervous irritation in many parts of the body, and that, if it continued very long, was very violent in degree, or if the sanguineous system was debilitated, it would produce inflammation. This it seems to do in gout. We infer that it does so, because dyspepsia always precedes gout. It does not indeed appear that it is the long continuance or the violence of the nervous excitement which is the cause of the inflammation, since neither the one nor the other is often present. We must look, therefore, to the sanguineous system, which we believe will in all gouty cases be unusually full, and its contained blood will be unnatural.

We are quite unable, in the present state of our knowledge, to show why the inflammation attacks the limbs and joints rather than other parts; but we are equally ignorant of the causes which determine other inflammations to particular parts of the body. We conclude, then, that gout is a disease of irritation, in which the inflammatory action is brought on by distant disorder. It is no argument against the theory in question, that many patients are *quite free from symptoms of indigestion during an attack of gout*; because, as we have before shown under Dyspepsia, inflammation being established in a distant part, it acts as a counter-irritant to the original disease, as when long-continued indigestion brings on inflammation of the lungs, and the dyspepsia goes off. Rheumatism, on the other hand, seems less connected with indigestion.

Having indulged in these few remarks, and being on the whole quite dissatisfied with our progress in the ætiology of either gout or rheumatism, we shall proceed to detail their symptoms and cure.

1. *Arthrosis acuta*, acute rheumatism: pain and inflammation, usually about the larger joints and surrounding muscles, often wandering; urine depositing a lateritious sediment; fever a cauma. Four varieties.

α. *A. artuum*: pain chiefly felt in the joints and muscles of the extremities.

β. *A. lumborum*, lumbago: pain chiefly felt in the loins; and shooting upwards rather than below.

γ. *A. coxendieis*, sciatica: pain chiefly felt in the hip-joint; producing emaciation of the nates on the side affected, or an elongation of the limb.

δ. *A. thoracis*, spurious pleurisy: pain chiefly felt in the muscles of the diaphragm; often producing Pleuritis diaphragmatica.

This division into varieties is rather nominal than real; and all the distinctions of rheumatism required by practical men is that of acute or chronic, or combined with gout.

Acute rheumatism begins, like most other febrile diseases, with fits of chilliness, which are succeeded by increased heat, frequent pulse, thirst, loss of appetite, and prostration of strength. Not unfrequently, however, the peculiar symptoms appear before any febrile symptom is observed; namely, pain and inflammation in the joints. The pain sometimes affects the joints alone; but often it affects also the muscular parts, shooting along the course of the muscles from one joint to another; and it is always increased by the action of the muscles, that is, by any attempt to move the joints that are diseased. Its usual seat is in the larger joints, such as the hips, knees, shoulders, and elbows: the ankles and wrists are also frequently attacked; but the smaller joints, such as those of the toes and fingers, suffer considerably less. Two, three, or more, of these joints, are commonly affected at the same time; but the pain is constantly shifting its place, leaving some joint and going to another, and frequently returning again to each of them several times during the course of the disease; and in this manner the disease is often protracted for a considerable length of time. Soon after,

and sometimes at the same moment with the commencement of the pain, the joint seized becomes swelled and somewhat red, and is extremely painful to the touch. The pain is sometimes relieved by the occurrence of swelling, but not always; neither is the joint thus rendered more secure from a return of the attack. The patient, thus unable to move the joints affected, which are irritated and acutely pained by external contact, sometimes even by the weight of the bed-clothes, and in a state of severe internal pain, unable to find any position of ease, lies sleepless and restless for several days and nights together. The fever accompanying the disease is most considerable during the night, at which time the pains also are most violent. The pulse is commonly from ninety to a hundred in a minute, and occasionally more frequent; often full; and sometimes hard and sharp, but most frequently soft. The heat of the skin is considerable; and the disease is commonly attended with sweating, even from an early period, which is often profuse and constant, but never either relieves the pains permanently or proves a crisis to the fever. The urine, in acute rheumatism, is remarkably high-coloured from the beginning; and afterwards deposits most copiously a brownish-red sediment, like brick-dust. This sediment, however, is probably the result rather of the profuse sweating than of any peculiarity belonging to the disease; since it is commonly seen after a dose of sudorific medicine, or any other variety of perspiration. Like the sweating, it does not occasion or betoken any favourable change in the fever. The blood exhibits, in a high degree, the buffy coat.

With the symptoms above detailed, the rheumatic fever often continues for several weeks: it seldom, however, proves fatal, and perhaps never while the joints alone are the seat of the disease; the fever, indeed, usually becomes less violent after two or three weeks, and the pains less severe, and less disposed to change their place. But occasionally the inflammation of the joints has disappeared, and some vital organ, as the brain, lungs, or stomach, has been seized with inflammation, by which the patient has been carried off; or these organs have become simultaneously affected, and the same fatal event has ensued.

It has been remarked by Dr. Cullen, as indicative of the peculiar nature of rheumatic inflammation, that the acute rheumatism, though it has so much of the nature of the other phlegmasiæ, differs from all those hitherto mentioned in this, that it is *not apt to terminate in suppuration*. Indeed this hardly ever happens in rheumatism; but the disease sometimes produces effusions of a transparent gelatinous fluid into the sheaths of the tendons. He says, "if we may be allowed to suppose that such effusions are frequent, it must also happen that the effused fluid is commonly re-absorbed; for it has seldom happened, and never indeed to my observation, that considerable or permanent tumours have been produced, or such as required to be opened, and to have the contained fluid evacuated. Such tumours, however, have occurred to others, and the opening made in them has produced ulcers difficult to heal. (First Lines, par. 448.) The non-occurrence of suppuration in these violent rheumatic inflammations is of itself a striking characteristic of the disease; and the circumstance, that it is not productive, on the other hand, of what are called *chalk-stones*, or of that cretaceous-like secretion which is the result of the inflammation of gout, distinguishes it from the latter malady. In addition to this circumstance, however, there are other points of distinction between the *gouty* and *rheumatic* inflammation; namely, that the latter usually attacks the large joints; that it is not preceded by symptoms of indigestion; that it does not recur in regular paroxysms; and that it attacks younger people, and those not liable to gout from their modes of life; and that it is usually the effect of a specific cause, cold.

The predisposing causes of rheumatism, are plethora and

and the other causes of inflammation in general. Males, and those between the time of puberty and thirty years of age, are the most liable to acute rheumatism.

2. *Arthrosis chronica*, chronic rheumatism: pain, weakness, and rigidity, of the larger joints and surrounding muscles; increased by motion; relieved by warmth; spontaneously or easily growing cold; fever and swelling slight, often imperceptible.

The varieties are the same as those of the preceding species, of which Cullen regards the disease as a mere sequel. It appears however at times to be idiopathic; but it is often difficult to draw the line between the two; and indeed a variety of links connect acute and chronic rheumatism together. In most instances, chronic rheumatism is the direct consequence of an attack of the acute form of the disease. The febrile symptoms, the swelling, and particularly the redness of the joints, have disappeared, and the general functions have resumed their healthy condition; but still certain joints continue to be affected with pains and stiffness, which are particularly felt on motion, and are often accompanied by a spontaneous coldness, and a torpor sometimes almost amounting to paralytic. These affections are much influenced by the changes in the temperature and humidity of the atmosphere; and are distinctly aggravated by external cold, and relieved by external warmth. The parts affected are not easily made to perspire; so that, when the other parts of the body are brought into a state of free and warm perspiration, that on the pained joints is only cold and clammy. The pains are also, like those of acute rheumatism, most severe in the night.

This chronic affection of the joints, however, is very often altogether independent of any previous inflammation and swelling, and occurs in many persons who have never been subject to an attack of acute rheumatism. It occurs, indeed, very frequently in persons somewhat advanced in life, and beyond the period when the acute form of the malady is usually seen. In these cases it is commonly ascribed to the action of cold; very often to partial exposures of the particular parts of the body in which it takes its seat; and it is apt to be produced again and again in those parts which have once suffered from exposure of other parts of the body to cold. Thus, getting the feet wet will induce an attack of lumbago, sciatica, or a crick in the neck, according to the predisposition induced in these respective regions by former attacks. Many cases of chronic rheumatism, are ascribed, however, to violent strains of the muscles of particular parts, occurring on sudden and somewhat violent exertions, and even to fatigue from long-continued exertions of particular muscles.

As to the *treatment* of rheumatism, this is different according to the stage of the malady. In the first stage of rheumatism, free general bleeding must be had recourse to, followed by purgatives and local bleeding. When the disease is mitigated by these measures, our endeavours may be directed to the abatement of pain by means of opiates; and also to the cure of the disease by certain remedies empirically administered; of these cinchona and opium have the greatest reputation. Indeed some practitioners have recommended these drugs at the onset of the disease. This seems to us highly improper. The object of cinchona can only be to stimulate the vessels of the inflamed membrane, with a view to the recovery of their natural powers; nor can opium be any further advantageously exhibited than as it alluages pain, and thus removes one of the conditions of inflammation. Seeing the disposition of rheumatism to suffer metastasis, we should be very careful not to remove, by any other than constitutional remedies, the local affection. Cold lotions may be used however to abate the violence of the inflammation.

When the rheumatism has become *chronic*, the curative measures must be changed. We should remove occasionally general plethora; but our attention should for the

most part be directed to the nervous system; and we shall find topical remedies by no means useless. In addition to the rigid adoption of the dyspeptic treatment, a free use of guaiacum should be resorted to; or in some cases small doses of antimony, calomel, and opium, with warm fomentations to the affected joints.

When the symptoms are mitigated, counter-irritants may be used with advantage. Some other substances have been employed, with occasional success, in the cure of different cases of chronic rheumatism, which do not appear to possess any quality in common, and the operation of which, therefore, cannot be satisfactorily explained. Among these we may mention *fulphur*, which has long possessed a sort of popular reputation for the cure of lumbago, and some other varieties of the disease. Taken nightly in a considerable dose, so as to act gently upon the bowels, it has succeeded, in some instances, in affording a very speedy and marked alleviation of the symptoms; but, on the other hand, it has very often failed to produce any effect whatever; and under what circumstances these respective variations in its operation occur, no one has been able to ascertain.

As another expedient for the cure of chronic rheumatism, the *arsenical solution* of Dr. Fowler has been recommended; and, if plethora and dyspepsia be removed, it may be employed with safety, and, as it seems to us, with success.

The warm or tepid bath, from the temperature of 85° to 95° of Fahrenheit's thermometer, has been much used, but seems to be somewhat supererogated by the application of the vapour of hot water to the surface. Dr. Bardley says, "whenever the joints were found so rigid as to be nearly immoveable, and the pains upon motion exquisitely severe, or when the muscles had become contracted and almost paralytic, and indeed in every protracted case of the disease of the hip-joint, lumbago, or sciatica, the vapour of hot water, locally and properly applied, afforded (especially in conjunction with other topical applications) a safe and often successful remedy."

As counter-irritants in chronic rheumatism, blistering, issues, or the ointment of emetic tartar, have been employed with highly-beneficial effects. In slight cases, *rubefacients*, or those substances which stimulate the cutaneous vessels, and excite a redness of the surface by causing them to be defended with blood, will be found useful, especially when their operation is aided by *friction*.

Among other stimulants which have been employed for the cure of chronic rheumatism, especially in those cases which are obstinate and of long duration, or are accompanied by considerable torpor and rigidity, and a diminution of the vital heat, the influence of the *electric* and *galvanic* fluids has been resorted to; and many testimonies might be adduced in proof of the beneficial operations of both these agents. Dr. Bardley affirms, that the application of electricity by sparks and shocks; especially the former, was manifestly advantageous; at the same time he acknowledges, that it was chiefly in conjunction with the local application of vapour, and with tonics and anodynes administered internally, that the most marked advantages were produced.

3. *Arthrosis podagra*, the gout: pain and inflammation chiefly of the smaller joints, returning after intervals; often preceded by, or alternating with, unusual affections of the stomach, or other internal parts; unsuppurative. Three varieties.

α. P. regularis: the articular pain, swelling, and inflammation, considerable; continuing for several days, often with remissions and exacerbations; then gradually dispersing, and leaving the constitution in its usual or improved health.

β. P. larvata: disguised and lurking in the constitution, and producing derangement in the digestive or other functions, with only slight and fugitive affection of the joints.

γ. P. complicata: the disease fixing on some internal organ,

organ, instead of on the joints; or suddenly transferred from the joints after having fixed there; producing, in the internal organ affected, debility or inflammation according to the state of the constitution.

The gout sometimes comes on suddenly, without any warning of its approach; but it is generally preceded by several symptoms, especially by those of indigestion, as heart-burn, flatulence, and heaviness after meals, with eructations of acid or bitter matters, and some degree of languor and torpor of the body; but immediately before the fit the appetite is sometimes unusually sharp. There is also often an unusual coldness of the feet and legs for a few days preceding the fit, with the cessation of the perspiration about the former; a frequent numbness, alternating with a sense of prickling, along the whole of the lower extremities; occasional cramps of the muscles of the legs, and an unusual turgescence of the veins, are occasionally observed.

The attack is sometimes felt in the evening, but more commonly about two or three o'clock in the morning; when the patient is awakened from a quiet sleep by a pain affecting one foot, generally the ball or first joint of the great toe, but sometimes the other parts of the foot, or the ankle. This pain is accompanied with more or less of chilliness and shivering, which, as the pain increases, gradually ceases, and are succeeded by a hot stage of pyrexia, or symptomatic fever, which continues during the same time as the pain. The pain becomes by degrees more and more violent: at first it is attended with a sensation as if warm water were poured upon the membranes affected, and is said to resemble the pain of a dislocated joint; as it becomes severe, it is sometimes described as resembling the pain of a tension or laceration of the ligaments, sometimes as like that from the gnawing of a dog, and sometimes as a feeling of weight and constriction of the membranes of the part, which becomes so exquisitely tender, as not to endure the weight of the bed-clothes, nor even the flaking of the room from a person walking briskly in it. Hence, great restlessness of the whole body, and especially of the part affected, always accompanies the fit; the patient constantly changing his posture, with a view to ease the pain, which, nevertheless, continues severe all the following day, until midnight, after which it gradually remits: and about two or three in the morning, that is, after twenty-four hours from the first attack, it commonly ceases almost entirely; and this freedom, with the breaking out of a free perspiration, allows the patient to fall asleep. On waking, he finds the pain slight, and the part affected with some redness and swelling.

When a paroxysm has thus come on, although the violent pain, after the period of twenty-four hours, be considerably diminished, yet the patient is not entirely without pain. For some days he has a return every evening of pain and fever, which continue, with more or less violence, till morning. After continuing in this manner for several days, the disease sometimes goes off entirely, not to return till after a long interval; and in such cases it generally leaves the person in very perfect health, enjoying greater ease and alacrity in the functions both of body and mind than he had for a long time before experienced.

It often happens, however, that the disease does not thus speedily quit the patient, especially when he has previously suffered considerably from its attacks. For, instead of ceasing altogether after a few days, it seizes the other foot in the same manner as it did the former, both in respect to the vehemence and duration of the pain. Most commonly the foot first affected becomes quite easy, in such a case, and even as strong and healthy as if it had not been diseased; but sometimes both feet are affected together, and with equal violence. When this happens, the succeeding exacerbations, as Sydenham remarks, are less regular, both as to the time of coming on, and as to their continuance; but the pain always increases in

the evening and remits in the morning; and what is called a *fit* of the gout, which goes off sooner or later, according to the age and constitution of the patient, is made up of a number of these little fits. For, when this disease lasts two or three months, it is not to be esteemed one continued fit, but rather a series or assemblage of small fits, the last of which proves milder and shorter, until the whole is terminated. In strong constitutions, and such as have the gout seldom, the attack is commonly finished in fourteen days; but in those of advanced life, or who have frequent returns of the disease, these series of fits will continue for two months; and in such persons as are more debilitated, either by age or the long continuance of the disorder, it will not go off till the summer advances, (beginning, as is most common, in January, or early in February,) which seems to drive it away.

When the fit is going off, a violent itching seizes the foot, especially between the toes; and the cuticle peels off. The appetite and strength return sooner or later, according to the greater or less severity of the preceding fit, and the interval of health between the paroxysms is generally nearly in the same ratio; i. e. longer in proportion to the greater violence of the last fit. At the beginning of the disease, Dr. Cullen observes, the returns of it are sometimes only once in three or four years; but after some time the intervals become shorter, and the attacks become annual; afterwards they come twice each year, and at length recur several times during the whole course of autumn, winter, and spring; and as it happens that, when the fits are frequent, the paroxysms become also longer, so, in the advanced state of the disease, the patient is hardly ever tolerably free from it, except, perhaps, for two or three months in summer.

Before the disease becomes thus inveterate, however, it has gradually assumed other appearances, and attacked other parts of the body. At first it commonly affects one foot only; but afterwards every paroxysm affects both feet, the one after the other, and then both together; and its changes of place as it continues to recur, are not only from one foot to the other, but also from the feet into other joints, as the hands, wrists, elbows, knees, &c. so that there is scarcely a joint in the body that is not, on one occasion or other, affected. It sometimes seizes on two different joints at the same time; but more commonly it is severe in a single joint only, and passes successively from one joint to another; so that the patient's affliction is often protracted for a long time. The pains, indeed, are commonly less violent, in this state of the disease, than they were at first; but, in addition to them, loss of appetite, sickness, and other symptoms of the atonic gout, now afflict him. Besides, in the intervals between the first paroxysms of the disorder, the joints which had been affected were entirely restored to their former suppleness and strength, and were free from pain or uneasiness, and all the functions of life were well performed. But in this protracted condition of the disease, the joints remain not only weak and stiff after the termination of the fit, but they become at length so contracted and disabled, that, although the patient can stand, and perhaps walk a little, yet it is very slowly, and with great lameness and difficulty, so that he is scarcely able to move from room to room; and sometimes the joints lose their motion altogether.

In many persons, though not in all, when the disease has frequently recurred, this immobility of the joints is farther increased by the formation of concretions, of a chalky appearance, upon the outside of them, and for the most part immediately under the skin. The secretion or deposition of this matter is characteristic of the disease, being the consequence of gouty inflammation alone. It seems to be deposited at first in a fluid form, but afterwards becomes dry and firm; in which state the concretions have the appearance of a friable earthy substance, and have been called *chalk-stones*, which see, vol. iv. p. 75.

From the investigations of Dr. Wollaston, however, and other modern chemists, it has been ascertained that they contain no calcareous or earthy matter, but consist of a neutral salt, formed by the combination of the lithic or uric acid, with the fixed alkali, soda; constituting a lithate or urate of soda. These concretions form principally about the joints of the toes and fingers, in little nodules; but sometimes they appear about the larger joints, as the elbow and knee, occasioning a whitish swelling almost as large as an egg, which becomes gradually inflamed and red.

The attack of the *regular* gout is readily distinguishable from the only disease which resembles it, viz. acute rheumatism, if all the symptoms are taken into consideration. In the first place, gout is commonly a disease of advanced life; acute rheumatism is most frequent from the age of eighteen to thirty. Nor does rheumatism, like the gout, seize the feet in preference to the other joints, or remain for a considerable time in the same joint; but at the first attack it often seizes every joint of the body in succession, and sometimes continues for several months. The colour of the skin of the part affected in rheumatism, if it be changed, is only slightly red, whereas it becomes of a deep bright red in the gout. The pain in the rheumatism is not extremely acute while the part is at rest, but becomes violent when it is moved only; which is not the case in the gout. And the symptoms of indigestion and disordered stomach, which precede the paroxysm of the gout, together with the marks of distinction just mentioned, will serve particularly to determine the nature of the paroxysm. It must be admitted, however, there are instances of the combination of the symptoms of the two diseases, which renders it difficult to decide to which of them the individual examples belong.

When the gout is cured in the limbs, inflammation of other organs of the body is often observed; and many practitioners have concluded that the translated disease differed from common inflammation. There appears no just reason for supposing this. The symptoms of these inflammations are similar, and the cure precisely the same. Our knowledge of the previous condition of the patient might induce us to rely more fully on counter-irritation, seeing that this process had a curative effect on the original malady; but further no difference should be made between the treatment of gout and that of inflammation, when vital organs are attacked. Simple irritations also alternate with gout, and require the usual treatment: severe spasms of the belly by hot and stimulating medicines; and so on.

The cure of gout is no easy task. It is one, however, which well repays the practitioner for his labour, whether he considers the alleviation of human suffering, or the pecuniary emoluments he derives from his profession; for no disease is productive of more pain, or more exclusively attaches itself to the higher orders of society.

The connexion between gout and indigestion having been pointed out, it remains merely to apply the knowledge of this connexion to the cure of the disease. In the first place, we have stated fulness of vessels to be one of the conditions of gout: this therefore must be removed. In some cases, a very large bleeding may be necessary; in others, a very small one will sufficiently diminish the plethora. The treatment of the local plethora is comprised in cold lotions, leeching, or cupping; but these should not be ventured on till general plethora has been removed by bleeding, and the derangements of the digestive organs, which first give rise to the symptoms in the extremities, set to rights. For the latter purpose, temperance and activity are the chief measures in which we can place confidence. By *temperance*, however, we do not mean a sudden relinquishment of the nutritious food and stimulating liquors in which the patient has indulged; neither, in recommending *exercise*, is it our intention to cause excessive exertions to supersede a life of slothful ease. The diet must retain many of the pro-

perties to which the gouty subject has long been accustomed; and the change which we make should be gradually brought about.

We cannot give any very precise rules as to the sort of diet which it should be our ultimate aim to establish. It may be sufficient to remark, that in plethoric patients this should gradually be deprived of those substances which are rich and easy of assimilation, while the quantity is at the same time diminished. In patients who are not plethoric, but in whom nervous irritations, whether mental or otherwise, have deranged the digestive organs, this plan must be modified; and the diet of a nutritious though easily-digestible quality, as jellies, soups, &c. must supersede the more abstinent diet.

As to the medical treatment of the gouty, this will in some measure vary according to the nature of the attending dyspepsia. The acid secretions of the stomach require carbonate of soda, a medicine which also acts on the kidneys. Derangement in the hepatic secretion requires calomel; and the inaction of the bowels, purgatives, &c. But, upon the whole, it seems generally understood, that little medicine is required in the dyspepsia of gouty patients. The derangement in the secretion of the kidneys in gout has made many physicians turn their attention to a probable connexion between these two affections. In speaking of Dyspepsia, we have already stated the opinion of a distinguished pathologist, that in that complaint an acid is actually assimilated into the blood, and that it gives rise to gravel; and, as is well known, an acid humour in the blood was once considered the proximate cause of gout. We have already mentioned objections to Dr. Phillip's views on the subject of calculi. It is certain, notwithstanding, that promoting the secretion of the kidneys is attended with salutary effects in the complaint under consideration. The action of the skin and of the capillary system in general should be excited, in gout, by bathing, and by exercising the *sound* limbs. The same treatment, which cures the gout once established, prevents also its recurrence; and indeed, *if temperance and exercise were strictly used during convalescence, it is probable that few would suffer from repeated attacks of gout.*

Having then gone through the treatment of gout on principles of pathology, it remains to mention a powerful remedy, of the salutary effect of which most medical men can bear testimony, though they know nothing of its *modus operandi*. This is the Colchicum, or meadow-saffron. It has long been used in quack-medicines as a specific for the gout; and was prescribed by the ancients; and lately it has become extremely popular. It is said to act on the skin, the kidneys, and the bowels; but it sometimes does much good without producing any visible effect of this kind. It is not, however, a specific for gout: it is a highly dangerous remedy to tamper with; and it labours under the opprobrium, that patients cured by it are very apt to suffer attacks of gout at a shorter period than when cured by the ordinary plan of treatment. It may be used in conjunction with other medicines with great advantage. A variety of formulae are advocated by different practitioners; but it does not seem that any one of them is preferable to another. We have generally used the wine. It is worthy of remark, that if the sediment be separated from the preparation of Colchicum, its effects are less likely to be injurious than if this portion is taken into the body. We repeat, that few patients who are cured by Colchicum, or by any other medicine, will suffer a relapse if they strictly observe temperance and exercise.

4. Arthrosis hydarthrus, white swelling: tense, permanent, colourless swelling, chiefly of the larger joints; inflammation slow, and deep-seated; pain severe and fixed; imperfectly suppurative; fever a hectic. Two varieties are noted.

a. Plethoricus, rheumatic white swelling: pain diffused; swelling considerable from the first; originating

and chiefly seated in the cartilages and ligaments of the affected joint; found principally in plethoric habits.

β. Strumatofus, scrofulous white swelling: pain circumscribed and shooting from a point; swelling from a general thickening of the part; at first inconsiderable; originating and chiefly seated in the bone. Found principally in scrofulous habits.

These varieties are upon the authority of Bell on Ulcers; but Hunter says, "I conceive all such collections of matter to be of a scrofulous nature: they are most common in the young subject, and seldom found in the full-grown or old. The suppuration is not proper pus, nor the swelling proper inflammation." Hunter on Blood, p. 391. See the article SURGERY.

Order III. EXANTHEMATICA, [from ἐξανθεω, to spring forth, to bud.] Eruptive Fevers; or, cutaneous eruptions essentially accompanied with fever. This order contains four genera.

Genus I. *Enanthefts*, [from ἐν, within, and ανθεω, to spring, or flower.] Rash, or efflorescence from internal affection. Generic characters—Eruption of red, level, or nearly level, patches; variously figured; irregularly diffused; often confluent; terminating in cuticular exfoliations. There are three species.

1. *Enanthesis rosalia*, (Scarlatina of various authors.) Scarlet fever: rash a scarlet flush, appearing about the second day on the face, neck, or fauces; progressively spreading over the body; and terminating about the seventh day; fever a typhus. Of this genus there are two varieties.

α. *R. simplex*: fever moderate, and terminating with the rash; little prostration of strength; slightly contagious.

As no authors have written on cutaneous diseases so ably and so fully as Drs. Willan and Bateman, we shall extract all our accounts of cutaneous diseases from the works of the latter.

The *Rosalia simplex* consists merely of the rash, with a moderate degree of fever. The day after the slight febrile symptoms have appeared, the efflorescence begins to show itself, about the neck and face, in innumerable red points, which, within the space of twenty-four hours, are seen over the whole surface of the body. These, as they multiply, coalesce into small patches, but on the following day (the third) form a diffuse and continuous efflorescence over the limbs, especially round the fingers. On the trunk, however, the rash is seldom universal, but is distributed in diffuse irregular patches, the scarlet hue being most vivid about the flexures of the joints and the joints. On the breast and extremities, in consequence of the great determination of blood to the milary glands and papillæ of the skin, the surface is somewhat rough, like the cutis anserina, and several papulæ are scattered on these parts. See Plate III. fig. 2. On the following (the fourth) day the eruption remains at its acme; and on the fifth it begins to decline, disappearing by interstices, and leaving the small patches as at first. At this period, and on the evening of the second day, some attention is requisite to distinguish the scarlet rash from measles: the observation of the crescent-like form of the patches of the latter, and the more diffuse and irregular shape of the former, will be a material guide. (Compare Plate III. fig. 1, with Plate IV.) On the sixth day it is indistinct, and is wholly gone before the end of the seventh. On the eighth and ninth days a scurfy desquamation of the cuticle takes place. The efflorescence spreads over the surface of the mouth and fauces, and even into the nostrils, and is occasionally visible over the tunica albuginea of the eye: the papillæ of the tongue too, which are considerably elongated, extend their scarlet points through the white fur which covers it. The face is often considerably swelled. There is usually great restlessness, and sometimes slight delirium, which appears to be much connected with the great heat of the surface,

and continues in various degrees of severity, together with the fever, from three to seven days. A few patients escape without any fever, almost without indisposition.

β. *R. parithmitica*, (Scarlatina cynanchica, Cullen; S. anginosa, Bateman.) In this variety, the precursory febrile symptoms are more violent, and an inflammation of the fauces appears, together with the cutaneous efflorescence, and goes through its progress of increase and decline with it. Occasionally, however, the affection of the throat commences with the fever, and sometimes not until the eruption is at its height. With the first febrile symptoms, a sensation of stiffness and a dull pain on moving are felt in the muscles of the neck; and on the second day the throat is rough and strained, the voice thick, and deglutition painful. On this and the two following days, the symptoms of fever are often severe; the breathing is oppressed; the heat of the skin is more intense than in any other fever of this climate, rising to 106°, 108°, or even 112°, of Fahrenheit's thermometer. There is sickness, with headach, great restlessness, and delirium; and the pulse is frequent, but feeble: there is also an extreme languor and faintness. The tongue, as well as the whole interior of the mouth and fauces, is of a high red colour, especially at the sides and extremity, and the papillæ protrude their elongated and inflamed points over its whole surface. The rash does not always appear on the second day, as in *R. simplex*, but not unfrequently on the third; nor does it so constantly extend over the whole surface, but comes out in scattered patches, which seldom fail to appear about the elbows. See the Plate, fig. 3. Sometimes too it vanishes the day after its appearance, and re-appears partially at uncertain times, but without any corresponding changes in the general disorder: the whole duration of the complaint is thus lengthened, and the desquamation is less regular. When the rash is slight, indeed, or speedily disappears, no desquamation often ensues; while, in other instances, exfoliations continue to separate to the end of the third week, or even later, and large pieces of the entire cuticle fall off, especially from the hands and feet. The tumour and inflammation of the throat often disappear, with the declining efflorescence of the skin, on the fifth and sixth day of the fever, without having exhibited any tendency to ulceration. Slight superficial ulcerations, however, not unfrequently form on the tonsils, velum pendulum, or at the back of the pharynx, sometimes early and sometimes later. Little whitish sloughs are seen, intermixed with the mottled redness; and, when they are numerous, the throat is much clogged up with a tough viscid phlegm, which is secreted among them. When these are removed, after the decline of the fever, some excoriations remain, which soon heal.

R. parithmitica sometimes puts on, towards its termination, much more formidable characters. From its commencement some difference is indeed observable, though not distinctly. The efflorescence is usually faint, excepting in a few irregular patches, and the whole of it soon assumes a dark or livid red colour. It appears late, and is very uncertain in its duration; in some instances, it suddenly disappears a few hours after it is seen, and comes out again at the end of a week, continuing two or three days. The skin is of a less steady and intense heat: the pulse is small, feeble, and irregular: the functions of the sensorium are much disordered; sometimes there is early delirium, and sometimes coma, alternating with fretfulness and violence. The eyes are dull and suffused with redness, the cheeks exhibit a dark-red flush, and the mouth is incrustated with a black or brown fur. The ulcers in the throat are covered with dark sloughs, and surrounded by a livid base; and a large quantity of viscid phlegm clogs up the fauces, impeding the respiration, and occasioning a rattling noise, as well as increasing the difficulty and pain of deglutition. An acrid discharge also distils from the nostrils, producing soreness,

sores, chops, and even blisters. These symptoms are often accompanied by severe diarrhoea, and by petechiæ and vibices on the skin, with hæmorrhage from the mouth, throat, bowels, or other parts, which, of course, but too often lead to a fatal termination. This generally takes place in the second or third week; but, in a few instances, the patients have suddenly sunk as early as the second, third, or fourth, day, probably from the occurrence of gangrene in the fauces, œsophagus, or other portions of the alimentary canal; and sometimes at a later period of the disease, when the symptoms had been previously moderate, the malignant changes have suddenly commenced, and proved rapidly fatal. Even those who escape through these dangers, have often to struggle against many distressing symptoms, for a considerable length of time; such as ulcerations spreading from the throat to the contiguous parts, suppuration of the glands, tedious cough and dyspnoea, excoriations about the nates, &c. with hectic fever.

This disease is not unfrequently followed by a state of great debility, under which children are affected with various troublesome disorders. But there is one affection peculiar to the decline of Rosalia, which occurs especially when the eruption has been extensive; namely, anasarca of the face and extremities. This dropsical effusion is commonly confined to these parts, and therefore unattended with danger: it usually appears in the second week after the declension of the rash, and continues for a fortnight or longer. But in a small number of cases, when the anasarca had become pretty general, a sudden effusion has taken place into the cavity of the chest, or into the ventricles of the brain, and occasioned the death of the patient.

In tracing the scarlet fever in its mildest form, the interference of medicine is unnecessary, and in fact hurtful. If the bowels are much confined, a laxative may be given, and saline medicines may serve to increase the security of the patient; but, further than this, medicine does harm. In the second variety, however, we have reason to adopt more efficient measures. Although blood-letting has been recommended by Morton, De Haen, and others, the experience of our later writers on this subject coincides in deeming it injurious. Dr. Willan says, wherever it had been employed great depression and faintness were the immediate consequences, the pulse becoming more weak and frequent, and often irregular. And Dr. Withering discountenances even local bleeding. "Sometimes, where the fiery redness of the eyes and the state of delirium seemed to demand the application of leeches to the temples," he observes, "I have seen them applied, but never with any good effect." Upon the whole, it is best to confine bleeding in scarlet fever to cases in which the head or other vital part is gravely affected, or in which the symptoms lead us to infer that the disease will terminate in a malignant form. We have found leeches to the pit of the stomach of essential benefit when the attendant gastritis has been extreme.

Emetics have been much recommended; and in the early stage of the disease, probably while the contagious materia is still in contact with the stomach, they sometimes prevent the development of the exanthem: and many have advised vomits to be continued, and in large and frequent doses, during the continuance of the malady, and under all its forms. The propriety of this practice may reasonably be doubted. Nauseating medicines are nevertheless useful; and fox-glove may be given in the early stages of the disease. Gentle purgatives should be regularly administered; but drastic cathartics should be entirely proscribed.

The application of cold is a remedy of the greatest avail in Rosalia, the simple observation that the skin is hot and dry being enough to guide us in its use. If the foolish prejudices of patients prevent us from using this important measure, sponging the body, and especially the

epigastrium, may be resorted to. In the latter end of the disease, i. e. when it puts on the malignant form before described, cold affusion is improper. Leeches to the inflamed throat, blisters in the vicinity of an inflamed organ, and gargles, are local applications of much use; but of which plenty of formulæ abound. Plate III. fig. 3, displays the appearance of Rosalia parithmitica in its most advanced or malignant state.

2. Enanthesis rubeola, measles; rash in crimson stigmatised dots, grouped in irregular circles or crescents; appearing about the fourth day, and terminating about the seventh; preceded by catarrh; fever a cauma. Three varieties.

a. *R. vulgaris*: rash slightly prominent, extending over the mouth and fauces; harsh dry cough; inflamed watery eyes. Occurring only once in the course of a man's life: contagious. See Plate IV. fig. 1.

β. *R. spuria*: the rash running its regular course with little fever or catarrhal affection; affording no certain security against the common or regular disease.

γ. *R. nigra*: the rash about the seventh or eighth day assuming suddenly a black or livid hue, interspersed with yellow; prolonged in its stay; and accompanied with increased languor and quickness of pulse. See fig. 2.

The two last varieties are sufficiently described in the above definition. It remains, however, to give a more detailed account of the symptoms of measles in general.

R. vulgaris begins with symptoms of fever; flushing of the cheeks; a sensation of pain or weight across the forehead and eyes, with disposition to sleep; slight soreness of the throat, a white fur on the tongue, a frequent and somewhat irregular pulse. On the third and fourth days, the eyes become tender and inflamed, the eye-lids and tarsi a little turgid; there are discharges from the eyes and nostrils, and repeated sneezing; and afterwards a frequent dry cough, hoarseness, difficulty of breathing, and a sense of constriction across the chest. These symptoms decline with the efflorescence on the seventh day. A harsh sounding cough often precedes the attack, in infants, seven, ten, fifteen, or twenty, days. The rash appears in patients having a delicate skin, partially on the third day; in those having a dark or thickened skin about the fifth; but most usually on the fourth. It is first visible on the forehead, under the chin, about the throat, nose, cheeks, and mouth; it is formed on the neck and breast, early on the fifth day, and is diffused, towards night, round the trunk, and on the extremities; during this day it is most full and vivid on the face, as represented on Plate IV. On the sixth day the efflorescence on the face begins to decline; that on the body is most red and extended, and declines on the succeeding day, leaving a roughness and itching of the skin, with the formation of scurf. The colour of the rash is less vivid than in Roseola; and, on its decline, assumes a yellowish hue. It commences with distinct red and nearly-circular dots; larger patches appear afterwards, approach to the form of a crescent or semicircle, and are gently raised under the finger. They consist of a number of the dots just mentioned, with which they are also interspersed, leaving, however, large interstices of the natural colour. Distinct papulæ are apt to appear on the face and hands in infants, and on the wrists and hands in adults: miliary vesicles also appear on the neck, breast, and arms. On the fourth day, small dark-red patches, of the form described, appear on the palate, uvula, tonsils, and velum pendulum palati; during the succeeding day, they pass into a general streaky redness. If the eruption be repelled by cold, delirium, dyspnoea, or diarrhoea, occurs, attended with considerable danger.

Dr. Willan thus recapitulates the diagnostic characters of Rubeola and Scarlatina, (our Rosalia.) "1. The efflorescence in Scarlatina generally appears on the second day of fever; in the measles it is seldom visible till the fourth. 2. It is much more full and spreading in the former disease than in the latter, and consists of innumerable

rable points and specks under the cuticle, intermixed with minute papule, in some cases forming irregular patches, in others coalescing into an uniform flush over a considerable extent of surface. In the Measles the rash is composed of circular dots, partly distinct, partly set in small clusters or patches, and a little elevated, so as to give the sensation of roughness when a finger is passed over them. These patches are seldom confluent, but form a number of crescents or segments of circles, with large intervening portions of cuticle, which retain their usual appearance. In Scarlatina, when any part of the rash has a tendency to circular forms, the circles are usually completed; sometimes their circumferences intersect each other variously. The colour of the rash is also different in the two diseases, being a vivid red in Scarlatina, like that of a boiled lobster's shell; but in the Measles a dark red, with nearly the hue of a raspberry.

3. During the febrile stage, the Measles are distinguished by an obstinate hoarse cough, forcing up, in repeated paroxysms, a tough acrimonious phlegm; by an inflammation of the eyes and eye-lids; by an increased discharge from the lachrymal gland, sneezing, &c. The Scarlatina is frequently attended with a cough, also with redness of the eyes from an extension of the rash to the tunica albuginea, circumstances which render the distinction between this complaint and Measles particularly difficult, if other symptoms be not clear and decisive. On minute observation, however, it will be generally, perhaps always, found, that the cough in Scarlatina is short and irritating, without expectoration; that the redness of the eye is not attended with intolerance of light; that the ciliary glands are not affected; and that, although the eyes appear shining and watery, they never overflow.

4. Most writers, in distinguishing Scarlatina from Measles, observe that there is a peculiar sensation of anxiety, depression, and faintness, in all cases of it which are attended with fever.

5. When the rash appears on the third or fourth day, being scattered, and of a dark shade of colour, as frequently happens in the two last varieties of Scarlatina, the disease may be distinguished from Measles, by the appearances in the throat, by the rigidity of the muscles of the neck, &c."

In the treatment of the mildest cases of Rubeola, as little medical practice is necessary as in the milder cases of Rosalia; and, in cases of more severity, bleeding is to be confined by the same restrictions as we have endeavoured to establish in its use in the latter complaint. That is to say, when pain or soreness in the chest, oppressed breathing, general anxiety, and restlessness, are absent in the eruptive stage of the measles, we shall have no occasion to bleed; and, where these are present, venesection, either general or local, will almost always be necessary. But sometimes it happens, that the breathing is very hurried, the cough frequent, and the pulse much quickened, about the first coming out of the rash; and yet, if we wait a day or so, we shall find the respiration gradually improve. In irritable children, and especially in infants, the respiration often becomes extremely anxious on an attack even of simple fever, wholly unconnected with pectoral inflammation; and this is more particularly the case when the bowels are disordered. We must be most careful to discriminate such a state of breathing from that which commonly attends pulmonic inflammation: nor, indeed, is this difficult, because the former is seldom permanently the same, but varies so much, at different times, that the patient will seem now much oppressed, and again easy; whereas, in the latter, there are no changes of this sort in the respiration, for it is so considerably oppressed, as never to be entirely easy. Besides, the anxious breathing, which arises from irritation, is generally increased by the erect position, and that which arises from inflammation more or less diminished: in the first, the child now and then obtains pretty tranquil slumbers, with little motion of the chest; but, in the last, the sleep is always very disturbed, and the chest may be seen

heaving up and down with an unnatural labour. When any part of the pulmonary system is inflamed in children, both the diaphragm and the abdominal muscles are generally thrown into an inordinate action; so that, if the belly and breast be exposed, one cannot fail of being struck with their forcible movements.

What is here said of pulmonic inflammation is also applicable to cephalitis, when it comes on during measles: the latter complaint is, however, of very rare occurrence. The reduction of pulmonic inflammation is the chief object in the treatment of measles. Cupping or blistering to the chest are occasionally required after the general bleeding. For the rest, the administration of saline medicines, gentle laxatives, and occasional soporifics, fills up our catalogue of remedies for measles. Both measles and scarlet fever are contagious, and affect a person once only during life, subject however to the same exception as small pox or other similar maladies.

3. *Enanthesis urticaria*, nettle-rash: rash in florid, itching, nettle-sting, wheals; appearing about the second day; irregularly fading and reviving, or wandering from part to part: fever a mild epianetus.

The urticaria begins with pain and sickness at the stomach, head-ache, great languor or faintness, a disposition to sleep, a sense of anxiety, an increased quickness of the pulse, and a white fur on the tongue. In two days, or sometimes later, wheals appear, with an efflorescence in patches of a vivid red, or sometimes nearly of a crimson colour. They are preceded by fits of coldness and shivering, and are attended with a most troublesome itching or tingling, which is greatly aggravated on uncovering the body, or during the night, and which prevents rest for many hours. The patches often coalesce so as to produce a continuous redness; they appear on most parts of the surface, but particularly on the shoulders, loins, nates, thighs, and about the knees. They also extend to the face; and there is sometimes a red circle round the palm of the hand, accompanied with a sensation of violent heat. They appear and disappear irregularly, first on one part, and then on another; and may be excited on any part of the skin by strong friction or scratching. During the day the efflorescence fades, and the wheals in general subside; but both return with a slight febrile paroxysm in the evening. The red patches are often elevated above the adjoining cuticle, and form dense tumours with a hard distinct border; the interstices are of a dull white colour. When the patches are numerous, the face or limb chiefly covered with them appears tense and enlarged. At the latter end of the disorder the eye-lids are red and tumefied, and there is often a swelling and inflammation on the sides of the feet. On the appearance of the eruption, the pain and sickness at the stomach are in general relieved; but, when it disappears, these symptoms return. The whole duration of the affection is seven or eight days. On its decline the rash exhibits a light purple or pink colour, gradually disappears, and is succeeded by slight exfoliation of the cuticle.

This disorder occurs principally in summer, in persons of a plethoric and sanguine habit, especially from indulgence in eating and drinking. It is often connected with teething and bowel-complaints in infants, whom it affects at one and at two years old. It appears to affect men more than women. A similar affection is induced from eating almonds, mushrooms, herrings, crab-fish, muscles, lobsters, &c. The Urticaria is liable, from the form of the rash, to be mistaken for Rubeola, and, from the state of the general surface, for Rosalia, especially on a partial examination. Several parts of the surface, and all the limbs, should be inspected, as the rash is often distinctly marked in one place, although obscure in others. The character of the eruption; the mode of attack; the absence of catarrh; and sore throat; the presence of tingling and itching, &c. will sufficiently distinguish the affection. An emetic of ipecacuanha, followed by a gentle

the laxative, with light and cooling diet, (with total abstinence from fermented liquors, and from sudorific medicines,) constitute the sole treatment which appears to be requisite for the safe conduct of these disorders to their period of decline; at which time the cinchona, with sulphuric acid, is beneficial.

Genus II. *Emphylysis*, [from *εμ* for *εν*, within, and *φλοσις*, a vesicular tumour or eruption.] Ichorous eruption from internal fever. Generic characters—Eruption of vesicular pimples filled progressively with an acrid and colourless, or nearly colourless, fluid; terminating in scurf or laminated scabs. There are six species.

1. *Emphylysis miliaria*, the miliary fever: vesicles scattered over the body; of the size of millet-seeds; transparent red, afterwards milky; preceded by a pricking sensation, sighing, anxiety, and four sweat.

The vesicles are at first red, from the colour of their under surface, or inflamed base, being transmitted through the transparent pellicle; they are afterwards opaque and milky, from absorption of the more attenuate part of the fluid, or from some other change. This affection, which is a mere symptom of inflammatory fever, generally owes its existence entirely to the hot and stimulating practice of our forefathers. In the present improved practice, it is scarcely ever seen; and it requires no particular treatment.

2. *Emphylysis aphtha*, the thrush: vesicles granular, roundish, pearl-coloured; confined to the lips, mouth, and intestinal canal; terminating in curd-like sloughs; occasionally with successive crops. Two varieties.

a. *Aphtha infantum*, white thrush: appearing in infants soon after birth; and often extending from the mouth to the intestinal canal; mostly with slight febrile symptoms, and white sloughs.

c. *Aphtha maligna*, black thrush: accompanied with great debility of vascular action; usually ascending from the pharynx into the mouth; sloughs black; fever a typhus.

To forbid improper diet, prescribe gentle laxatives, and occasionally the warm bath, and to cause a weak solution of borax to be applied to the fauces, constitutes all that is necessary for the treatment of *Aphtha infantum*.

The second variety shows itself at first by an uneasy sensation or burning heat in the stomach, which comes on by slow degrees, and increases gradually in violence. After some time, small pimples, of about the size of a pin's head, appear on the tip and edges of the tongue; and these at length spread over the whole inside of the mouth, and occasion such a tenderness and rawness of the parts, that the patient cannot take any food of a solid nature; neither can he receive any vinous or spirituous liquor into his mouth, without great pungency and pain being excited. Little febrile heat attends, but the skin is always remarkably dry and without the least moisture on it; the countenance is pale, the pulse is smaller and more languid than in health, and a general coldness is felt over the whole body, but more particularly in the extremities.

This complaint is always combined with chronic gastritis, of which it is probably a mere symptom; and it requires the same treatment, with the addition however of gargles.

3. *Emphylysis vaccinia*, cow-pox: vesicles few, or a single one, confined to the part affected; circular, semitransparent, pearl-coloured; depressed in the middle, surrounded with a red areola. Four varieties.

a. *V. nativa*, natural cow-pox: vesicles on the hands, or such parts as have been in contact with the affected under of a cow; of a bluish tint; the fluid at first limpid; afterwards opaque, and purulent; often with enlargement of the axillary glands, and considerable fever. A prophylactic against the small-pox.

c. *V. spuria*, spurious cow-pox: vesicles less uniformly

circular; purulent from the first; without bluish tint; with little or no central depression. Affords no security against the small-pox.

γ. *Inferta*, inoculated cow-pox: produced by inoculation; vesicle single, confined to the puncture; cellulose; bluish-brown in the middle; fluid clear and colourless to the last; concreting into a hard dark-coloured scab after the twelfth day.

δ. *V. degener*, degenerate cow-pox: produced by inoculation; vesicle amorphous, or uncertain; fluid often straw-coloured, or purulent; areola absent, indistinct, or confused with the vesicle; scab formed prematurely. Affords little or no security against the small-pox. See the article *INOCULATION*, vol. xi.

Since the time at which that article was composed, much, very much, has been written on the subject of vaccination. But, though some interesting circumstances of its origin, and the vast extent of the world to which it has travelled, have been made known, yet we look in vain through the long list of reports, from the most illustrious bodies of the profession, of cases, with which our periodicals have so long teemed, and even through entire treatises on vaccination, for one new practical fact. In a work of this kind it may be necessary, however, that we should give our testimony in favour of vaccination; lest, if it should fall into the hands of some whose prejudices are in opposition to the use of Jenner's discovery, our silence should be construed into disapprobation of it. And this is the more necessary, because, in some of the early articles of this work, vaccination has been spoken of in a slight manner. Its value was not then known, as its efficacy was not established. But we can no longer withhold our conviction of its great benefit in the majority of cases. We have now the support of the highest authorities in stating, 1. That vaccine matter, duly inserted under the skin, is capable of preventing the future occurrence of the small-pox. 2. That this matter requires a very small degree of concentration, but that it is liable to degeneration from chemical changes when removed from the body, and also while in the sore if it be taken at an improper time.

Many exceptions exist to the first rule. If the patient be afflicted with any cutaneous defecation, the vaccination will be generally ineffectual. In many cases small-pox will come on after cow-pox, notwithstanding the utmost precaution, from peculiar idiopathy of habit or constitution; and this happens in a far greater proportion of cases than the occurrence of small-pox twice ever happened. But so mild is it under these circumstances, that vaccination might be considered one of the kindest grants ever conferred by Providence on man, did it never effect any thing more than this modifying operation; for, even in that case, we should possess in the vaccine process all the advantages without any of the evils that are confessedly appended to variolous inoculation; and the writer must indulge the hope that neither the apprehensions of the timid, nor the wrong-headedness of the obstinate, will operate to any considerable extent, in encouraging the re-introduction of the latter practice. The sword for ages suspended over us has been blunted to the extent of almost entire harmlessness; and it were fully amounting to insanity, to polish it ourselves into its pristine power. And, when it is considered that by far the majority of vaccinated persons do not take small-pox under any circumstances of exposure or even of inoculation; when it is considered, also, that in those countries where vaccination is enforced, small-pox no longer exists; we cannot but view the prejudices against it as a great stigma on our national character.

4. *Emphylysis varicella*, the chicken-pox: vesicles scattered over the body; glabrous, transparent, pea-sized; in successive crops; pellicle thin; about the third day from their appearance, bursting at the tip, and concreting into small puckered scabs, rarely leaving a cicatrix. There are four varieties of this species noted by Dr. Good.

a. V.

α. V. lentiformis, common chicken-pox: eruption appearing the second or third day, and consisting of small red protuberances, not exactly circular, and having a flat shining surface, in the centre of which a minute vesicle is soon formed: this, on the second day of its appearance, is generally seen first on the breast and back, afterwards on the face and extremities; disappears about the tenth day, leaving red marks on the skin, without depression.

β. V. coniformis, conoidal chicken-pox, or swine-pox: vesicles acuminate: fluid pellucid throughout.

γ. V. globularis, the hives: vesicles globular and larger; fluid at first whey-coloured, afterwards yellowish.

The varieties are sometimes intermixed; and the fluid in a few of them occasionally approaches to a purulent appearance; whence in various instances they may have been mistaken for the small-pox. It must be recollected, however, that the pustules and vesicles do sometimes rise into one another, or that pus and serum may be produced by different degrees of the same action; so that the distinction in question is not to be depended on. Our readers are well aware, that some have inferred that varicella is a modification of the small-pox; and Dr. Bateman has thought proper to give some credit to this opinion. In a note on Varicella, p. 208 of his Synopsis, he says, "Since the introduction of vaccination, considerable differences of opinion have existed among medical practitioners, respecting the character of the eruption, which has occasionally appeared, after exposure to variolous infection, in persons previously vaccinated, some denominating it chicken-pox and others small-pox. The most careful observers must have admitted the difficulty of establishing a decisive distinction in many of these cases. A series of interesting observations which have lately been made at Edinburgh, have led the ingenious Prof. Thomson to believe that the chicken-pox itself is in fact a second and modified small-pox. While the question is still *sub judice*, I leave Varicella in its nosological seat; but many facts crowd upon my own recollection, which incline me to believe that this suggestion will ultimately prove to be correct."

The information that has been obtained on this head since Dr. B. wrote, has been highly corroborative of Prof. Thomson's views; but, as the question is by no means at rest, we shall follow the above great authority in leaving Varicella in its "nosological seat." The reader may consult on this head the Edinburgh Med. and Surgical Journal, 1818. and a variety of papers of recent dates in the London Medical Journal. The following are the usual diagnostic marks laid down between these diseases.

Varicella may be distinguished from small-pox by, 1. The appearance, on the second or third day from the eruption, of the vesicles full of serum at the top of the pock. The pustules which are fullest of the yellow liquor resemble what the genuine small-pox are on the fifth or sixth day, especially when there happens to be a larger space than usual occupied by the extravasated serum. It happens to most of them, either on the first day the little vesicle arises, or on the following, that its tender cuticle is burst: a thin scab is then formed on the top of the pock, and the swelling of the other part abates without the formation of pus as in small-pox. 2. Slight scabs cover the chicken-pox on the fifth day, at which time the small-pox are not at their height. 3. The inflammation round the chicken-pox is very small, and the contents of them do not seem to be owing to suppuration as in the small-pox, but rather to what is extravasated immediately under the cuticle by the serous vessels of the skin over a common blister. No wonder, therefore, that this liquor appears so soon as on the second day; and that, upon the cuticle being broken, it is presently succeeded by a thin scab. Hence, too, no scar is left.

Varicella is a disease which is by no means dangerous, and which affects a person but once in his life. No other

treatment is required than the cooling regimen, mild aperients, and saline draughts.

5. Emphyxis pemphigus, vesicular or bladdery fever: vesicles scattered over the body; transparent, filbert-sized; with a red inflamed edge, but without surrounding blush or tumefaction; on breaking, disposed to ulcerate; fluid pellucid or slightly coloured; fever a typhus. Three varieties.

α. P. vulgaris: vesicles appearing on the second or third day, occasionally not till the fifth or sixth; in successive crops; often extending over the mouth and intestinal canal; fluid, on bursting, yellowish; some of the vesicles livid, with a livid base.

β. P. glandularis, (P. contagiosus, Willan:) preceded by tumefaction of the neck and throat; vesicles chiefly seated on the fauces and conglobate glands; occasionally producing abscesses; highly contagious.

γ. P. infantum: vesicles irregularly oblong, with livid edge, and commonly flattened tops; appearing successively on different parts of the surface, in infants a few days after birth; fluid; on breaking, purplish.

Pemphigus is found, for the most part, as a symptom only in erysipelas, typhus, plague, and other depressing fevers. Dr. Good doubts whether Pemphigus is entitled to be considered as a distinct and idiopathic disease; and whether all its varieties and modifications may not resolve themselves into certain peculiarities of erysipelas, or pompholyx, the latter of which consists of similar vesicles or bullæ without fever, or mere symptoms of typhus or plague. Dr. Cullen seems to have been of the last opinion at the moment of drawing up his definition: but the fourth edition of his Synopsis contains a note which intimates that his opinion was altered in consequence of his having seen a patient, shown him by his excellent colleague F. Home, and who was labouring under this disease as an idiopathic affection at the time. And when to this instance (says Good) "we add the authority, not merely of the earlier writers, Bontius, Seliger, and Langhans, but of Withers, Dickson, Christie, Ring, and Braune, (Über den Pemphigus, Leipz. 1795.) it would be unpardonable not to allow it a distinct place in a general system of nosology."

Notwithstanding this string of authorities, it may reasonably be doubted that idiopathic Pemphigus ever existed. In Dr. Bateman's Synopsis this opinion is adopted from a review of all the authors above quoted; and in this it is shown that the accounts they have given are highly vague and unsatisfactory.

6. Emphyxis erysipelas, St. Anthony's fire: vesication diffuse; irregularly circumscribed; appearing on a particular part of the body, chiefly the face; about the third day; with tumefaction and erythematic blush; fever usually accompanied with sleepiness, often with delirium. This admits of two varieties.

α. Locale: limited to a particular part; the cuticle raised into numerous aggregate distinct cells; or the cells running into one or more blebs, or large blisters.

β. Erraticum: travelling in successive patches from part to part; the former patches declining as new ones make their appearance.

Erysipelas, which seems to occur twice over in Dr. Good's arrangement, has been already referred to another division of this work.

Genus III. *Empyesis*, [i. e. suppuration.] Pustulous eruption. Generic characters—Eruption of phlegmonous pimples; gradually filling with a purulent fluid; and terminating in thick scabs, frequently leaving pits or scars. But one species.

Empyesis variola, small-pox: pustules appearing from the third to the fifth day, suppurating from the eighth to the tenth; fever a cauma; contagious. The small-pox consists of the following four varieties:

α. V. discreta, distinct or natural small-pox: pustules pea-sized; distinct, distended, circular; the intervening spaces

faces red; the fever ceasing when the eruption is complete.

The natural small-pox begins with sensibility to cold, shivering, languor, feverishness, disturbed sleep, pain of the head and of the back, vomiting, and tenderness of the epigastrium under pressure. In adults, there is a strong tendency to perspiration; in infants, stupor, and fits similar to those of epilepsy, sometimes occur about the third day, but there is no tendency to perspiration. On the *fourth* day, the eruption generally appears on the face, and perhaps on the neck and breast; it extends gradually during the ensuing day, and becomes general over the surface of the body. The febrile symptoms abate on the appearance of the eruption. On the *fourth* and *fifth* days, the pustules are small, hard, and globular, red and painful, separate and distinct from each other, with nearly colourless interstices. They enlarge gradually until the *eighth* day, when they contain a little yellowish fluid, and the interstices become red. From this day the pustules increase in breadth, and have a small pit in their centre, until the *eleventh*, when they become more rounded, and are encircled by rings of rose-coloured inflammation, which coalesce when the eruption is numerous. About the *eighth* day, there is frequently a flow of saliva, the integuments of the face are apt to become swollen, the eyes are often closed, and the eyelids distended like a bladder. This tumefaction gradually declines; it is much abated, and the pustules are fully distended, about the *eleventh* day, when a degree of swelling is sometimes observed about the hands and feet, which, in its turn, subsides gradually; about the same time too, the tendency to perspiration diminishes, or ceases, spontaneously. The pustules break, the fluid partly issues, and at length dries and forms a scab, the cuticle becoming shrivelled; a process which is completed on the face about the *fifteenth* day. In a few days more, the scabs separate, leaving the subjacent part of a brownish-red colour, and often pitted. The fluid in the pustules situated on the arms and hands, is sometimes absorbed, and the cuticle falls down in a flaccid state.

G. V. confluens, confluent small-pox, is attended with febrile symptoms of a more serious kind, resembling those of *Empresma maligna*, and exacerbating towards evening. There are frequently coma, delirium; vomiting, and sometimes diarrhoea; a frequent, feeble, pulse; there is less tendency to perspiration; the appearance of the eruption induces less, and less permanent, relief; and the fever resumes its violence about the sixth day. The eruption appears *early*, on the *third* day. It is preceded, or attended, in many instances, by exanthema. The pustules are more numerous on the face; smaller, and less hard and eminent; during a *flower* and less marked progress, their diameters enlarge; they do not retain the circular and orbicular form, but assume an irregular figure, remain flat, and coalesce, so that frequently the face seems covered with one extended and continuous pustule. The interstices are pale and flaccid, and without the rose-coloured inflammation observed in *V. discreta*. The contained fluid becomes opaque and brownish, but does not assume the yellow, consistent, and purulent, appearance. The pustules at length break, the cuticle shrivels up, the enclosed fluid issues; dark brown scabs are formed, separate slowly, and leave deep pits. The tumefaction of the face, and the salivation, take place earlier, and are more considerable, than in *V. discreta*; they abate, and the hands tumefy, about the *seventh* day. In infants, diarrhoea sometimes occurs; and there is no salivation. On the general surface the pustules are more distinct; but they are less prominent, and the enclosed matter less consistent, than in the former variety. The febrile symptoms are mitigated on the appearance of the eruption, but again become more violent, and constitute what is termed the secondary fever in this disease.

y. V. infecta, inoculated small-pox; produced by ino-

culation; orange-coloured areola about the puncture; pain in the axilla about the seventh day; disease for the most part mild; and the purulent discharge sometimes confined to the punctured part.

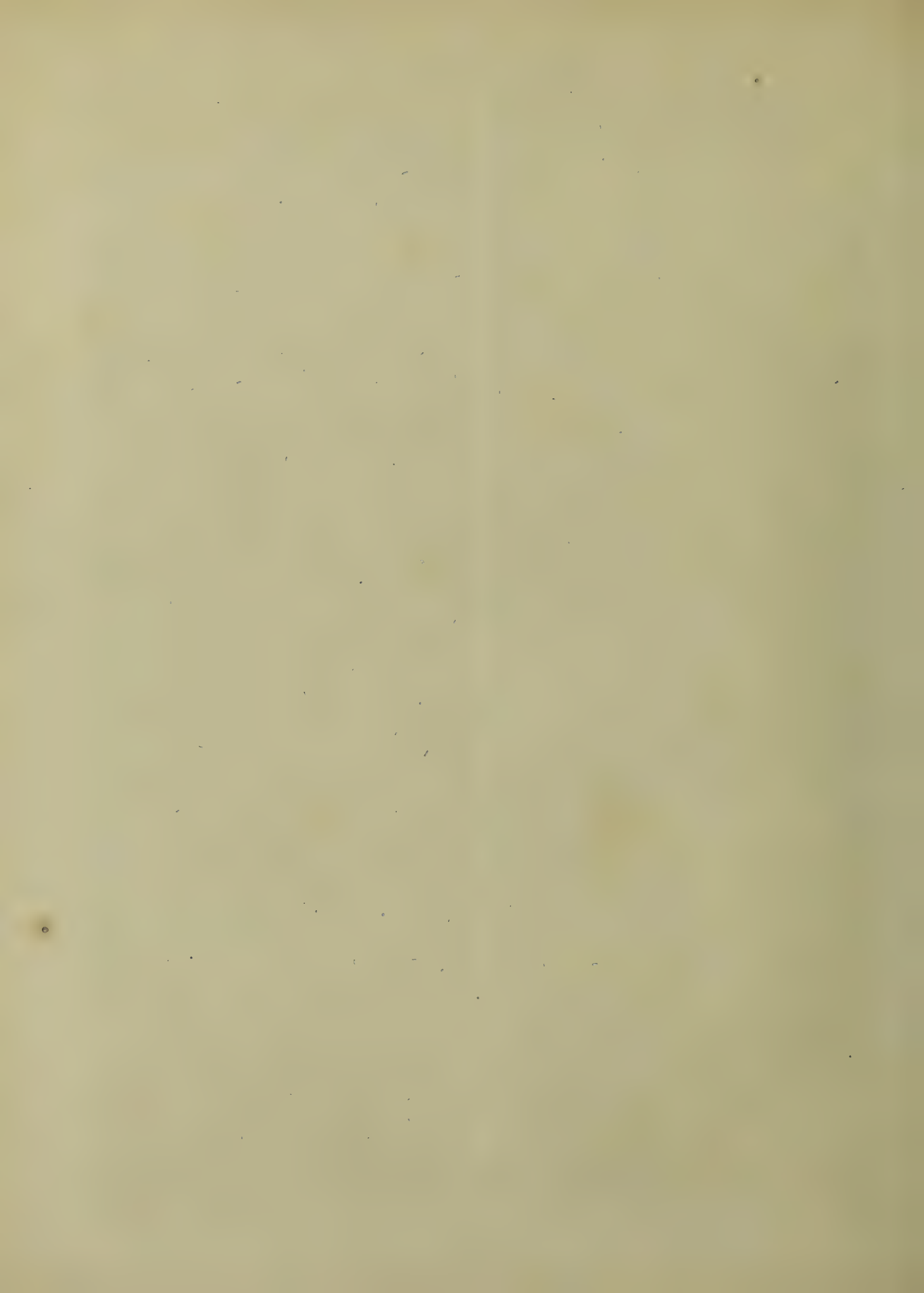
δ. Degener, horn-pock, or crystalline pock; pimples imperfectly suppurating; ichorous or horny, and semitransparent.

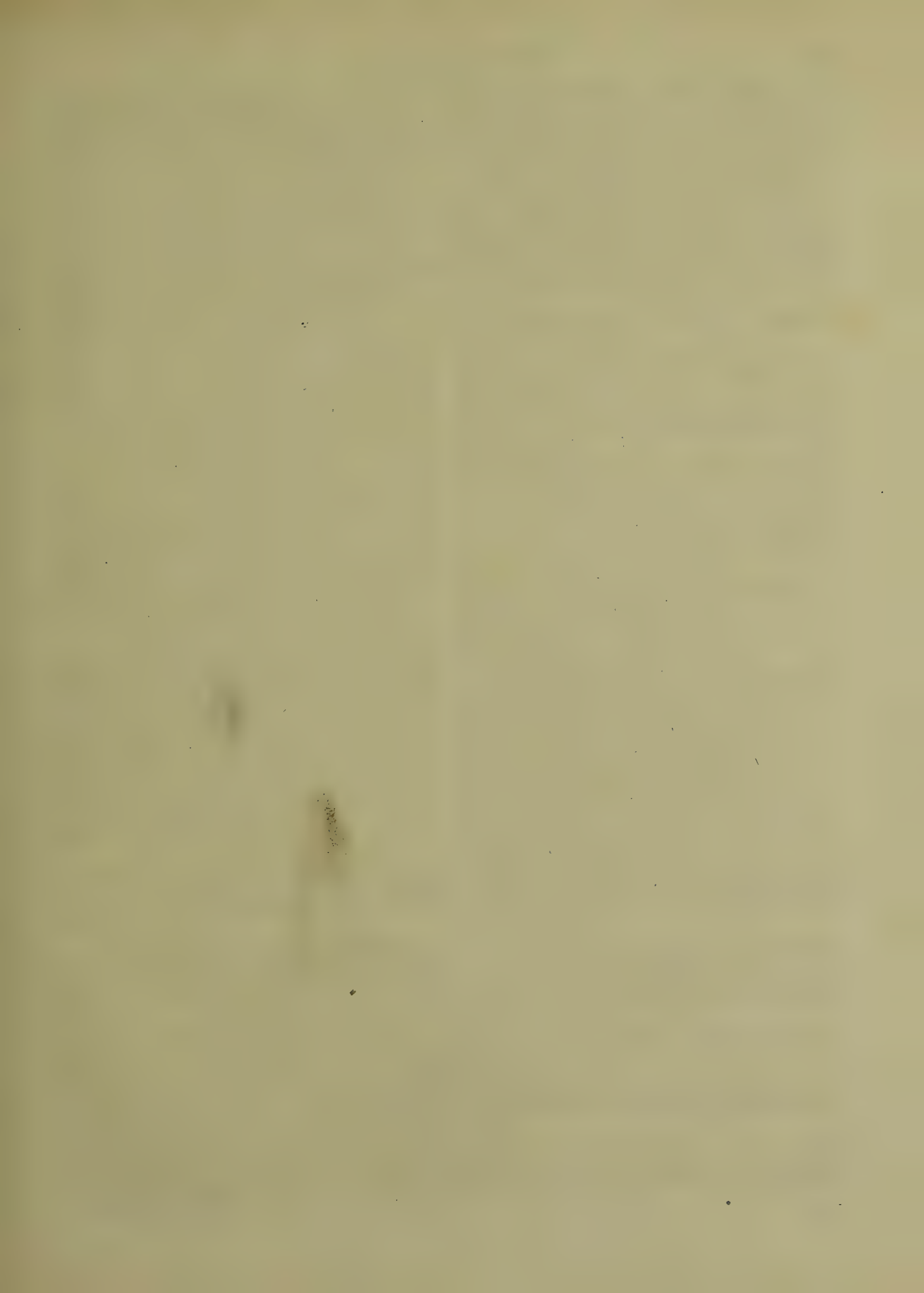
Now as to the treatment of small-pox. Since it appears very evident, that the danger and violence of the symptoms are nearly in proportion to the quantity of the eruption; which is again much connected with the degree of fever that accompanies and precedes it; the first indication is, to moderate the eruptive fever.

In the case of inoculated small-pox, this process may be commenced in the interval between the insertion of the matter and the beginning of the disorder, that is, several days previous to the origin of the fever; when, by a light and cooling diet, and by the use of laxative medicines if the habit be full, the body may be brought into a less inflammatory state, and thus rendered less susceptible of violent inflammatory disease. But, in the casual small-pox, we have commonly no warning of the malady, until the eruptive fever actually commences; nor, when it has already begun, can we be certain, from any peculiar symptoms, that it is any thing but an ordinary fever; unless it occurs in persons who, not having previously undergone the disease, have been notoriously exposed to the infection. It is fortunate, however, that our inability to distinguish the fever which is about to usher in the small-pox from common inflammatory fever, is of no moment; since the same remedies are the most appropriate in both cases. According to the degree of violence with which the fever commences, the activity of the measures for moderating it will be various. If the symptoms are not severe, the patient may be recommended not to keep his bed, but to remain, according to the advice of Sydenham, in a cool apartment, having the benefit of cool air; and at the same time to discard animal food, and adopt that of a cooling nature, vegetable decoctions, acidulous fruits, and diluent drinks, such as plain cold water, lemonade, whey, &c. All his drinks should be given cold; and the bowels should be freely opened by some cooling purgative, as by the neutral salts, with a little calomel. If these measures are adequate to keep down the fever, and if, at the same time, the eruption appears early; and in small numbers, the safety of the patient may be considered as ascertained; and no farther treatment, except a continuance of the antiphlogistic system, is necessary.

Where the fever comes on, however, with great violence, manifested by a quick hard pulse, intense heat, and thirst, a flushed countenance, inflamed eyes, severe head-ache, quick and oppressed respiration, with delirium, very active measures should be immediately adopted, especially in plethoric habits. In persons of this description, the first object would be to let some blood, the quantity of which must be determined by a consideration of the violence of the symptoms. At the same time, the cooling plan must be adopted to the fullest extent in respect to the apartment, which should be freely ventilated by the admission of the external air, through open windows and doors, and to the bed, which should be a mattress, and as lightly covered as the season and the feelings will permit. If the skin is intensely hot and dry, much benefit will be obtained, in the most expeditious manner, by sponging the surface occasionally with cold water, or even by the use of the cold affusion. An active purgative will also contribute to relieve inflammatory action, and should be speedily administered, and repeated according to circumstances.

If, however, these salutary measures have been omitted, or have proved inadequate to prevent a numerous eruption, especially upon the face; if the pustules are not distinct; and particularly, if, on the fifth day, the fever does not suffer a considerable remission; the disease will





will require a great deal of attention. It will still be necessary to avoid heat and a heating regimen, and to continue to admit the free access of cool air, although the more active applications of cold, by sponging or affusion with water, need not be continued. At this period of the disease, it may also be necessary, in adult and plethoric subjects, to take away some blood. This, however, seldom requires to be repeated. But a cooling purgative should be administered and repeated, or aided by a frequent repetition of laxative clysters; and the free use of diluent drinks should be permitted.

Opium, which has been very much used in small-pox, does harm in its early stages. In the later periods of the disease, however, when the febrile excitement is low, and much irritation is kept up by the hardening crusts, the moderate use of opiates is to be recommended.

The *secondary fever*, as it is called, occurs about the eleventh day, upon the complete suppuration of the pustules, or at least when these are perfectly full and stretched to their utmost extent. The bowels should be treated by gentle purgatives provided no diarrhoea has occurred. According to the state of the pulse, and the appearance of the matter in the eruptions, the strength of the patient, and other symptoms, more or less of a cordial plan of treatment must, however, be combined with the laxatives. Light liquid nourishment, with a little wine and water as drink, should be frequently administered; and an infusion of cinchona, with the mineral acids, will be given with advantage. If the disease put on a more malignant character, with petechiæ and hæmorrhages, the same treatment must be continued. Under this cordial plan, the petechiæ will sometimes disappear; the empty vesicles will become filled with matter; and the ichorous fluid of others be changed into white thick pus; the other symptoms of course improving in a similar degree.

If the fever becomes complicated with inflammation of the head, chest, bladder, or indeed of any other part, the usual measures for its removal are to be used. To prevent as much as possible the deformity of *pitting*, which succeeds small-pox, about the tenth day of the disease we should spread over the face a mask of fine old cambric, thinly smeared with a mild liniment composed of oil, spermaceti, and a little wax. This mask may be renewed three or four times in twenty-four hours, and sometimes oftener. An agreeable and refreshing coolness is felt for some time after each application; and, the apices of the pustules not being suffered to dry and harden, pitting is prevented in a great measure.

Small-pox very rarely attacks the same individual twice. For instances, however, see the article SMALL-POX.

Genus IV. *Anthraxia*, [from *ανθραξ*, a hot coal.] Carbuncle, or Plague-sore. Generic characters—Eruption of tumours imperfectly suppurating, with indurated edges, and for the most part a sordid and sanious core. There are two species.

1. *Anthraxia pestis*, (Loëmus, *Greek Authors*.) Plague: tumours bubonous, carbunculate, or both; appearing at an uncertain time of the disease; fever a malignant typhus, with extreme internal heat and debility; contagious.

The precise situation which Pestis should occupy in the nosological scale is a matter about which authors have been divided. Dr. Good gives it a place among the exanthems, because "the fever is specific, like that of all the exanthems; it is contagious, like that of most of them; and, although capable of occurring oftener than once in a man's life, we have the concurrent testimony of all the writers who have been eye-witnesses of its effects, that it renders him less susceptible for a considerable period afterwards. The eruption of buboes or carbuncles is unquestionably a pathognomonic symptom: the fluid they secrete is capable of producing the disease by inoculation; for the most part, the earlier they make

their appearance the better; and it is the opinion of M. Sotira, and most of the French medical staff appointed to the Egyptian expedition, that, provided the bubo freely suppurates, the patient receives an indemnity for life. It is true, indeed, that these tumours do not always appear in their proper or perfect character; for sometimes the patient is destroyed by the violence of the first symptoms; and in other instances, as in small-pox, the specific fever passes through its course with an imperfect or trivial fructification; but, unless there be an actual germination, or what Sauvages calls a *conatus*, a perfect or an imperfect epanthesis, we have no right whatever to call the disease a plague, and can only regard it as a species or variety of synochus, or typhus. It has three varieties.

α. *P. fructifera*: the disease extending to about the fourteenth day; and relieved by the appearance of the eruption.

β. *P. infructifera*: eruption imperfect or suppressed; transferred to some internal organ; or superseded externally by stigmata and vibices.

γ. *P. erythematica*: the body covered over with trails of vesicular erythema, producing deep sanious and gangrenous ulcerations as it spreads, often to the loss of one or more limbs.

For the best description of this variety of Pestis, Dr. Good refers us to the pages of Thucydides, who describes it from having been an eye-witness of its ravages, and a sufferer under them; or to those of Lucretius, who has copied the account with close and technical punctuality. The following passage from the latter may serve to illustrate this remark. *De Rer. Nat. lib. vi. 1152*. But we give it in the translation:

Forth pour'd the breath most fetid from the mouth,
As steams the putrid carcase: every power
Fail'd through the soul, the body, and alike
Lay they liquefcent at the gates of death:
While with these dread, insufferable ills,
A restless anguish join'd, companion close,
And sighs commixt with groans; and hiccough deep,
And keen convulsive twitchings ceaseless urg'd,
Day after day, o'er every tortur'd limb,
The wearied wretch still wearying with assault.
Yet ne'er too hot the system couldst thou mark
Outwards, but rather tepid to the touch;
Ting'd still with purple dye, and brandish'd o'er
With trails of caustic ulcers like the blaze
Strew'd by the holy fire. But all within
Burn'd to the bone: the bosom heav'd with flames
Fierce as a furnace, nor would once endure
The lightest vest thrown loosely o'er the limbs.

The extraordinary length of this article, and the various and affecting, though not strictly pathological, details which the history of Plague exhibits, induces us to defer our account of the malady in question till we come to the article *PLAGUE*.

2. *Anthraxia rubula*, the yaws: tumours numerous and successive; gradually increasing from specks to the size of a raspberry; one at length growing larger than the rest: core a fungous excrecence; fever slight; occurring only once during life; contagious. Two distinct varieties.

α. *R. Guineensis*, Guinea yaw: attacking infants and young persons chiefly; and subsiding as soon as the eruption appears.

β. *R. Americana*, American yaw: depascent; and destroying progressively both muscles and bones; especially the master-yaw, which is called *mamanpia*. See *YAWS*.

Order IV. *DYSTHETICA*, [from *δυσθετον*, I am ill.] Cachexies. "Morbid state of blood or blood-vessels alone or connected with a morbid state of other fluids producing a diseased habit."

This definition of Dr. Good's is extremely vague. It is very difficult, however, to make any arrangement of cachexies in our present state of knowledge without many faults; but, at all events, some of the diseases already mentioned might be referred to morbidity of the blood-vessels; and certainly dropsy has little to do with depravity of the blood as a primary cause. We must confess, however, that this is not the case of Plethora, Hæmorrhagies, Passiva, Cyrtosis, Porphyra, and some others. We have already expressed our opinion that many diseases are referrible to morbidity in the blood: and, after long and unwarrantable disregard of this important fact, our contemporaries are now returning to the investigation of the nature of the blood in disease. Their labours have hitherto been little successful; and indeed scarcely any thing can be stated with certainty as to the state of the blood in the majority of diseases, nor in any of them are we able to trace those minute changes on which the therapeutical agents would be safely set in action. It seems pretty clear that all material changes in the blood must be a work of time. The changes which a sudden alteration in the blood would induce in the contractility of the vascular and sensibility of the nervous systems would be such, that death, or at all events extreme febrile commotion, must occur. Moreover, all unnatural matters in the blood would, under such circumstances, be carried off by the secretions; and thus the sanguineous fluid would return to its natural condition. Blood being solely derived from food and air, it is to these agents we must look for its alterations. As the former can operate only by producing a greater or less degree of oxygenation in the blood, and as cachectic diseases are not extraordinarily manifested in situations where bad air is present, we should probably be right in referring cachexis to the ill effects of particular food. Indeed deficiency or bad quality of food and drink is evidently the cause of a very large proportion of cachectic maladies, and a serious source of aggravation to them all. In the natural or healthy state, indeed, we have very clear evidence, that unhealthy chyle is not formed in consequence of one or two improper meals; but when, from a long-continued use of substances irritating to the alimentary canal, from a restriction to one particular kind of food, or from previous disease in the absorbent or assimilating vessels, blood is slowly and imperceptibly produced of an unnatural quality, we should be prepared to meet with a corresponding change in the contractility of the containing vessels; we should expect also to find the secretion slowly deranged, and, as the disease advanced, the nervous system debilitated. The changes which the blood undergoes is perhaps very various in different diseases; but we know little of them. We may remark, however, that in all cachectic diseases (properly so named), the change in the blood diminishes the contractile power of the sanguineous system. Now, it having been proved by experiment, that the quantity of fibrine, and consequently the degree of coagulation, is in direct ratio to the force of the arterial contractions, we should naturally expect to find the blood containing an unusual proportion of serum, and more flow in its concretion, in cachectic diseases, since in them symptoms of arterial debility are for the most part unequivocal. It is only in this view of the subject that the first genus of this order, viz. Plethora, can be allowed to exist; for, from what has been before stated with regard to the dependance of the blood-vessels on the nerves, of the nerves on the vessels, and of the vessels on the blood, plethora, existing while these particular structures retained their natural properties, must inevitably terminate in local inflammation. This order contains fifteen genera.

Genus I. Plethora, [from πληθω, to fill.] Fulness of blood. Generic characters—Complexion florid; veins distended; undue sense of heat and fulness; oppression

of the head, chest, or other internal organ. There are two very distinct species.

1. *Plethora entonica*, sanguine plethora. This first species is rarely seen as a disease. It is probably a frequent forerunner of all the species of Pyrexia and Phlogotica, but exists in various degrees in different habits, and in many persons without manifesting scarcely any symptoms of indisposition. The change usually observed in the blood is an increase of coagulation, and in the redness of its colour.

2. *Plethora atonica*, or serous plethora, is a disease in which much change is induced in the state of blood. This change consists in an undue proportion of serum; and a deeper hue than ordinary. The pulse is full, frequent, and feeble; the mental actions languid; dullness and lowness of spirits being often met with. The figure is often plump, but inexpressive, such as is vulgarly called *dead fat*; and the urine coagulates on the application of heat.

The treatment of plethora is sufficiently obvious. The first species, being the forerunner of inflammation or inflammatory dropsy, will require brisk purging and bleeding, and a spare and vegetable diet. In the second species, the same indication of reducing the bulk of the blood is to be kept in view; but, as free bleeding diminishes rapidly the tone of the system, and as the vital powers are evidently in a very low state, we must proceed with the utmost caution; and, contrary to what is practiced in inflammations, (where our object is to diminish the excessive action of the heart rather than the quantity of blood,) we should in serous plethora bleed very frequently, but in small quantities at a time. An alteration should be made in the diet, which, in the majority of cases, should gradually become sparing. The treatment of dyspepsia united with the chronic hepatitis (diseases usually combined with the serous plethora) should be pursued, and the kidneys excited by means of diuretics.

Plethora, in one or other of its species, is usually found as an almost-universal symptom in hemorrhage and dropsy.

Genus II. Hæmorrhagia, [from ἅμα, blood, and ῥέω, to flow.] Hemorrhage; flux of blood from an organ without external violence. There are three species, besides varieties.

1. *Hæmorrhagia activa*, active hemorrhage: accompanied with increased vascular action; blood florid and tenacious.

Active hemorrhages are caused by all circumstances capable of inducing an increased momentum in the affected part, or in the system generally.

The immediate or proximate cause of an active hæmorrhage is the rupture of a blood-vessel, where the blood flows till, by the permanent contraction of the broken artery, or a coagulum, it is mechanically restrained. This retention is much more readily effected if the heart is quiescent.

Active hemorrhages we must consider as febrile diseases of an inflammatory kind. They are defined by Dr. Cullen, Pyrexia, with an effusion of blood independent of external violence; and the blood drawn having an inflammatory appearance. Active hemorrhages chiefly occur in full plethoric habits, most frequently in the spring and in the early months of summer. Previous to the fever which ushers in the discharge, some general fulness and uneasiness is felt, with a load on the parts from whence the hemorrhage will flow. The topical heat, swelling, or itching, is sometimes considerable. A short rigor which follows is relieved by the usual heat, and the hemorrhage soon comes on during this hot fit. After some time the discharge and the fever both cease; but every spontaneous hemorrhage has a tendency to recur; and, if this recurrence happens more than once, after

after a stated time, a habit is formed which is with difficulty overcome. These very marked appearances do not always occur; but traces of such symptoms may be often distinguished even in the most debilitated states. This species has six varieties.

α. *H. a. narium*, (*Epistaxis juniorum*, *Cull.*) Bleeding at the nose. In this variety the blood is discharged from the nostrils, usually preceded by a pain and heaviness in the head, flushing in the face, heat and itching in the nostrils, a throbbing of the temporal arteries, and a quickness of the pulse. In other hemorrhages, a coldness of the feet, and shivering over the whole body, together with a costive belly, are observed to precede the attack. The intensity of the head-affection is often very great.

β. *H. a. hæmoptysis*, spitting of blood. In this complaint, with the common symptoms of fever and increased arterial action, a flushing of the cheeks comes on, attended with dyspnoea and pain in the chest; a cough follows, by means of which blood is copiously ejected.

γ. *H. a. hæmatemesis*, vomiting of blood. In this variety, dark-coloured clotted blood is thrown up from the stomach, usually mixed with much phlegm. The discharge is often preceded by a tensive pricking pain in the stomach, or the left hypochondrium; and almost always attended with a nausea, anxiety of the præcordia, a compressing pain on the same side, and faintness.

It is of much consequence to ascertain whether the blood comes from the fauces, the nose, the stomach, or the lungs. If from the fauces, either directly or dropping from the nose, it is inconsiderable in quantity, and not always attended with any hawking; and, though this is sometimes the case, the symptoms of *Hæmorrhagia narium*, or inspection of the fauces, will assist the distinction. Blood, however, seldom comes from the fauces, but in passive hemorrhage. When a discharge of blood is from the stomach, it is brought up by vomiting; but patients can seldom distinguish between these two operations. In general, when from the stomach, the quantity discharged at once is more considerable; it is also mixed with the contents of the stomach, and not the mucus of the lungs; and faintness and nausea have generally preceded. The pulmonary blood is usually florid; that of the stomach of a darker colour. Complaints of the lungs, preceding the discharge, will show that a doubtful hemorrhage probably proceeds from those organs.

The treatment of these hemorrhages is very simple. The action of the heart being one of the causes of the hemorrhage, this is if possible to be restrained. Blood should be taken with almost as much freedom as in *Empresma*; i. e. if the pulse and constitution of the patient warrant such a measure. We have stated that it is necessary to take blood very quickly in inflammation, and this is still more necessary in active hemorrhage: a large orifice, or sometimes both arms, should be opened for this purpose; for it is not so much required to deplete blood as to exhaust the force of the heart. This being done, if the hemorrhage does not stop, the next step is to astringe the extremities of the bleeding vessels. This object is effected in the *H. narium* by injections of sulphate of zinc, sulphate of copper, &c. in hæmatemesis by solutions of sulphate of zinc, but in very moderate doses; or by the *Tinctura Ferri muriatis*, in large draughts of cold water. The same treatment is applicable to the paroxysm both of hæmoptysis and that of hæmatemesis. In the bleeding of the nose, the auxiliary measure of dashing cold water over the face, head, and neck, or even the general cold bath, may be resorted to. We may remark, that the affusion of cold water has been used in hæmoptysis; but, for obvious reasons, it is a dangerous expedient. Plugging the nasal sinuses with lint may be adopted as a dernier resort in violent hemorrhage from the nose.

The above remarks apply principally to the treatment of a sudden eruption of blood. When this is stopped,

the treatment should be conducted still with the same view of lessening the momentum of the blood by venesection and abstinent diet. We should avoid all circumstances capable of stimulating the heart, or increasing the impetus of blood in the affected organ. Animal food should therefore be withheld, quietude enjoined, cool drinks and purgatives administered. In hæmatemesis, and still more in hæmoptysis, digitalis and the superacetate of lead are very useful medicines. The former is given in various doses (usually from five to twenty drops), according to its effects; and the latter in a quantity varying from one to three or more grains. The sugar of lead is usually combined with opium; but we have found it more successful when given alone. The fears of some practitioners as to this substance producing colic should not arrest its exhibition, its constipating effects being easily corrected by purgatives.

δ. *H. a. hæmaturia*, bloody urine: evacuated at the urethra; preceded by pain in the region of the bladder or kidneys; and accompanied with faintness.

A discharge of blood by urine, when proceeding from the kidneys or ureter, is commonly attended with an acute pain in the back, and some difficulty of making water, the urine which comes away first being muddy and high coloured; but towards the close of its flowing becoming transparent and of a natural appearance. When the blood proceeds immediately from the bladder, it is usually accompanied with a sense of heat and pain at the bottom of the belly. The voiding of bloody urine is always attended with some danger, particularly when mixed with purulent matter. When it arises in the course of any malignant disease, it indicates a fatal termination.

When the disease occurs in a plethoric habit, it may be proper to take blood, and pursue the general antiphlogistic plan, opening the bowels occasionally with castor-oil, &c. When owing to calculi which cannot be removed, we must be chiefly content with palliative measures, giving alkalies or acids according to the quality of the urine; likewise mucilaginous drinks and clysters; and opium, fomentations, &c. to relieve pain; uva ursi also has been found useful under these circumstances; but more decidedly where the hemorrhage is purely passive; in which case also some of the terebinthate remedies may be cautiously tried; and means of strengthening the constitution must not be neglected.

ε. *H. a. uterina*, uterine hemorrhage: blood discharged from the uterus; with a sense of weight in the loins, and of pressure upon the vagina. See *Paramenia*, and the article PARTURITION, vol. xviii. p. 706-9.

ζ. *H. a. proctica*, (*Hemorrhoids*, *Cull.*) blood discharged from the anus spontaneously; with a sense of weight and pain within the rectum; and often of load in the head. See the genus *Proctica*, p. 166.

2. *Hæmorrhagia passiva*, passive hemorrhage: accompanied with general laxity or debility; and weak vascular action; blood attenuate, and of a Modena red.

Passive hemorrhages are much more difficult to cure than the active species before detailed. Their chief symptom, as in the active hemorrhages, is a discharge of blood, which however is said to be of a darker colour, longer in coagulating, and the coagulum when formed less firm, than in active hemorrhages. The symptoms of fever are also absent; and, above all, the pulse is soft and small. The passive hemorrhages result sometimes from ruptured arteries; but sometimes the blood is actually secreted. They are not necessarily accompanied with plethora, but they are so very generally. They are always connected with alteration in the blood; and are consequently never met with except in old persons, in dyspeptics or debilitated habits, or in those who have suffered from bad modes of living. The same local treatment is necessary in both species; but bleeding, so important in the first, is of no avail towards relieving the sanguine

sanguine eruption in the second. Between the paroxysms, however, it is necessary, for the most part, to take blood, and that frequently; but in small quantities, as directed in ferous plethora. The dyspeptic treatment must be put in force. Very great benefit is also derivable from counter-irritants, as blisters, &c. and, except in hæmaturia, by diuretics. The treatment of passive hæmorrhage embraces a wider field of dietetic treatment than probably any other malady. It may be considered as the same disease with Porphyra, affecting however another structure. The varieties are similar to those of the first species; viz.

- α. Narium: discharged from the nostrils without local heat or head-ache.

- β. Hæmoptysis: thrown up from the respiratory organ, usually with coughing; often accompanied with scirrhus or calculous affection: countenance pale and emaciated.

- γ. Hæmatemesis: evacuated from the alimentary canal at either extremity with expulsive effort, nausea, and faintness; but without tensive pain.

- δ. Hæmaturia: evacuated at the urethra; usually with faintness, but without previous pain.

- ε. Uterina: discharge from the menstrual organ, with a sense of local weakness.

- ζ. Proctica: discharged from the anus spontaneously, with little or no pain; usually with varices or congestions of the hæmorrhoidal veins; occasionally producing a habit. See Proctica marica, p. 168, 9.

A remarkable history is contained in the 33d volume of the London Medical Journal, of a whole family who died at different periods from hæmorrhage supervening to trifling wounds or scratches. But, as the relator made no further remarks as to the constitution or symptoms of the patients, we know not whether these were cases of active or passive hæmorrhage. We should be inclined to suppose the latter.

3. Hæmorrhagia vicaria, vicarious hæmorrhage: catenated with a morbid or suppressed action of some other organ; the outlet being usually the nostrils, trachea, vagina, or rectum; at times the urethra. This species has the same symptoms and treatment as idiopathic hæmorrhage. It may be active or passive.

Genus III. *Marasmus*, [from *μαρασσω*, to grow lean.] Emaciation of the entire body. It has three species.

Emaciation is a symptom of many complaints, and one which often serves us to distinguish idiopathic from nervous or irritative diseases: it being usually found, that, while in the latter this is often absent, in most chronic inflammations or degeneration of internal structures, early emaciation is met with. A *marasmus* from mere exhaustion, a very unimportant disease, differs from that which depends on visceral disorder in the greater *tightness* of the skin which the latter exhibits, while in the former its texture is loose and natural.

1. *Marasmus atrophica*, atrophy: complexion pale, often squalid; skin dry and wrinkled; muscles shrunk and inelastic: little or no fever. Three species.

- α. *A. inanitorum*: the crisis of the blood vitiated by excessive evacuations; as saliva, sweat, milk, intestinal secretion, or blood itself.

- β. *A. famelicorum*: the crisis of the blood vitiated by the use of food deficient in quantity, and innutritious in quality.

- γ. *A. debilium*: the crisis of the blood vitiated by infirm action of the digestive faculty; as in puny infants, and feeble age.

The first and second varieties are cured by the gradual exhibition of natural food; the third by the treatment for *Dyspepsia*, which see.

2. *Marasmus tabes*, decline: general languor; hectic fever; for the most part depressed spirits. Four varieties.

- α. *T. purulenta*: the blood vitiated by absorption of pus from an external or internal ulcer, or a vomica.

That hectic fever is a common attendant on the forma-

tion of pus is unquestionable; but whether this arises from absorption is doubtful. Indeed it has rather seemed to us to be the particular irritation going on in the suppurating part which disturbs, through the medium of the nervous system, the general health. If this were an admitted explanation, it would also lead us to suppose that the beneficial effect of bark was owing to the opposite impression it induced on the system.

- β. *T. strumosa*, (*T. scrophulosa*, *Cull.*) Blood vitiated by a scrofulous taint; and, for the most part, connected with a scrofulous affection of some organ or other. See *Struma mesenterica*.

- γ. *T. dorsalis*: vitiated by excess in libidinous indulgences. Accompanied with pain in the back and loins; fallow, dejected visage; heaviness of the head; syrigmus; sleeplessness; horror of mind; extreme genital debility.

We believe this dreadful malady is not to be alleviated by any but moral treatment.

- δ. *T. venenata*: the blood vitiated by an introduction of some poisonous or other deleterious material into the system; often from the injudicious use of quicksilver; perhaps, at times, from small portions of arsenic.

2. *Marasmus phthisis*, consumption. To attain a knowledge of the causes and cure of consumption, may justly be considered the highest point of ambition to the English pathologist. For, whether we consider the extraordinary inroads it makes on the population of this country in general, the youth, the beauty, and often the mental endowments, of its victims; or, lastly, the opprobrium its fatality casts upon our profession; it cannot fail to be an object of the intensest study and contemplation. Much has been written on consumption by English writers; the whole *matéria medica* has been ransacked for specifics against it; yet very little has been done. It seems to us, that the pathology of this disease has not been studied with the accuracy that has been lately applied to almost all others. This want of a theoretical view of phthisis does not indeed arise from the deficiency of high ratiocinative powers in the writers of our time. It is that we want actual data on which to found our reasoning. We want a few established facts for our premises. Most men can reason accurately on allowed premises; but in phthisis the premises are so far from being allowed or settled, that there is much reason to believe that gross errors are to be found in those most commonly received. To trace the operation of air on the lungs, as far as its temperature, its weight, its humidity, its foreign mixtures, and its electrical properties, are concerned, is a task which can only be accomplished by the united labours of many. And, though numerous desultory observations have been made on these points, yet, not being made with the specific object of tracing the cause of consumption, but being generally confined to one only of these particulars, our information is very confined. Advancing another link in the chain of the causes of phthisis, the absence of symptoms, and the unfrequency of deaths at an early stage of this disease, have prevented the medical observer from accurately tracing the formation of the consumptive disorganization to its first source, and through its separate stages.

But, if these investigations, conducted with somewhat of a philosophic spirit, have failed, what have we to expect from the mere experimenter, who, throwing aside the laborious toil of comparing the climate and situation of distant countries with the mortality of phthisis, or the still more disagreeable office of numerous and minute dissections, has been employed merely in practising on human life by potent drugs, in the vain hope of discovering a specific? We will venture to predict that it is not from this tribe of pathologists that consumption will meet with a cure. Yet how many boasted specifics have been fashionable for a time, to fall into merited oblivion! In this species Dr. Good reckons three varieties.

- α. *Phth. catarrhalis*, catarrhal consumption: cough frequent and violent; copious excretion of a thin, offensive, purulent,

the first of the series of
the second of the series of
the third of the series of

the fourth of the series of

the fifth of the series of
the sixth of the series of
the seventh of the series of

the eighth of the series of
the ninth of the series of
the tenth of the series of

the eleventh of the series of
the twelfth of the series of
the thirteenth of the series of

the fourteenth of the series of
the fifteenth of the series of
the sixteenth of the series of

the seventeenth of the series of
the eighteenth of the series of
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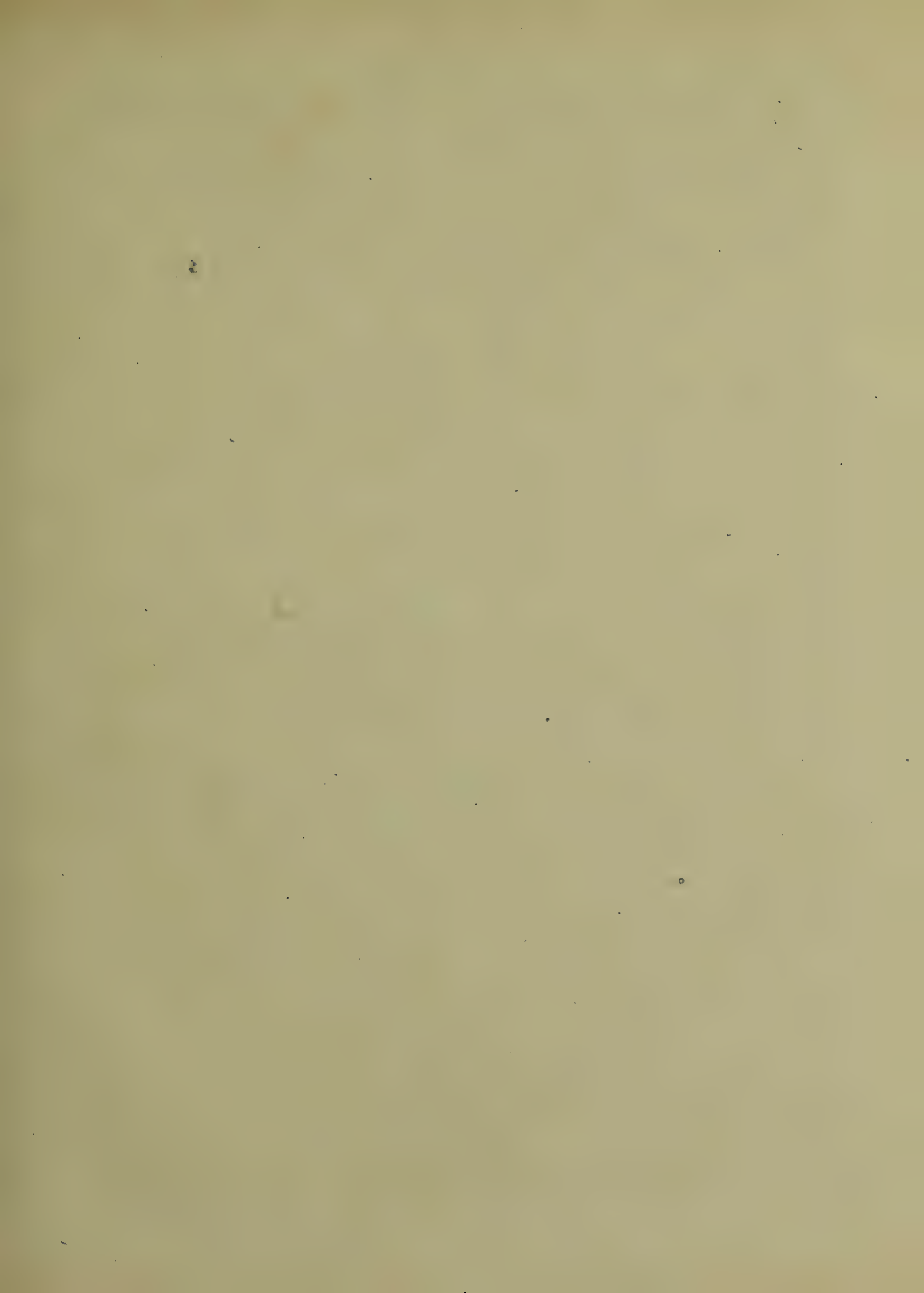
the twentieth of the series of
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the twenty-seventh of the series of
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purulent, mucus; general soreness of the chest, with transitory pains shifting from side to side. Chiefly produced by catching cold, or the neglect of a common catarrh.

β. Pht. apoftematosa, apoftematous consumption: cough severe but dry; fixed, obtuse, circumscribed, pain in the chest, sometimes pulmonary; difficult decumbiture on one side; at length sudden and copious discharge of purulent matter, occasionally threatening suffocation; the other symptoms temporarily, rarely permanently, relieved. Chiefly the result of repeated hæmoptysis.

γ. Pht. tuberculosa, tuberculous consumption: cough short and tickling; excretion of a watery whey-like saniem, sometimes tinged with blood; pain in the chest slight; habitual excretion of spirits. Usually the result of a scrofulous diathesis.

We cannot, however, minutely follow the above division of consumption, because, in common with many other divisions, they are becoming generally abandoned in consequence of the advance of pathological knowledge. It must be granted that catarrh is often accompanied by tubercles, and that these formations often precede apoftema; but the peculiar symptoms and the fatality of phthisis belong only to the third variety; the two former varieties being considered as severe forms of Bronchitis, or Apoftema vomica, which see. The word Phthisis is therefore restricted in this treatise to those disorganizations of the lungs known by the name of *tubercles*, and to the subsequent alteration in structure these tubercles undergo. The only distinction that can be made out, as far as we conceive, will depend on whether the patient be stromous or not.

Now, as to the formation of tubercles in the lungs, this is a point little known. We have before had occasion to notice, that two explanations had been afforded of the appearance of tubercles; that one theory affirmed them to be organizations of lymph previously effused by an inflammatory process; that, on the other hand, some referred the production of tubercles to an undefined disease in the absorbent system; and, as a coincident opinion, that the first germ of the tubercle was an hydatid. We are not prepared to decide between the opposite parties; but we incline to suppose that tubercles may originate in both ways. And first, of the formation of tubercles from inflammation, we conceive some evidence is to be found in viewing their remote causes. Variable weather, more especially if in a cold and humid climate, has the effect of preventing the due action of the whole of the cutaneous vessels; consequently internal circulation is increased. This increase in the circulatory fluids is particularly felt in the lungs. This fact is evident to every one; for the most common observer has not failed to notice the extreme feeling of distention in the lungs which follows the application of cold to the surface of the body. Now, if it be admitted that plethora can be induced in the lungs by cold and moisture applied to the skin; if it be admitted also, that consumption is most prevalent in those situations where, from the degree of cold and moisture, or from their variability, these conditions can act most forcibly on the skin; then, knowing as we do that impediment in the cutaneous increases the pulmonary circulation, and that plethora is the chief condition of inflamed parts, we cannot hesitate to ascribe the production of tubercles to an inflammatory origin in some cases. Further proof of their origin in this source might be adduced from the frequency of phthisis after the pneumonia.

With respect to the origin of the tubercles in diseased absorbents, this, though capable of less direct proof, is still probable. It rests greatly on the supposed locality of scrofula, the latter disease being usually considered an affection of the lymphatic system; and, as scrofula and phthisis are frequently complicated, as in scrofulous patients tubercles even in other viscera are the most common degenerations, the origin of phthisis being the same.

as scrofula has been justly contended for. It rests also on the grounds, that many people exposed to the vicissitudes of climate, and who are subject to frequent pneumonites and catarrhs after fever, enjoy nevertheless immunity from consumption. Moreover, tubercles have been found in the lungs of the fœtus. Indeed so evident is the fact that phthisis and struma are often the same diseases, that we believe it has never been disputed. The only question to be decided, is whether chronic pneumonitis will not end in phthisis, even in constitutions not stromous. The very general suffering of the French army in Holland, and the testimony of Broussais, who says that all the tuberculous cases he dissected there were preceded by catarrh or pneumonia, go to prove the affirmation.

Leaving, however, these speculations, on which we cannot throw so much light as we wish, we proceed to consider these tubercles when formed, their progress, and accompanying symptoms.

Laennec, in his excellent work on "Mediate Auscultation," states that the earliest stage of tubercles he has met with is when they form small semi-transparent grains of a grey hue, but sometimes diaphanous and almost colourless. Their size, in the first instance, varies from that of a millet to that of a hemp-seed; they at length become larger, opaque or yellowish, at first in the centre, and successively throughout their extent. Those most adjacent unite as they develop themselves, and form then more or less voluminous masses, of a pale yellowish colour, opaque, and of a density similar to that of the hardest sort of cheese: they are then termed *crude tubercles*. It is ordinarily towards this epoch of the disease, that the tissue of the lungs, hitherto healthy, begins to become hard, greyish, and semi-transparent, around the tubercles, from a new production of tuberculous matter in the first stage of its formation, which infiltrates the pulmonary structure: the latter is sometimes found without tubercles. The pulmonary tissue, thus engorged, is dense, humid, and wholly impenetrable to the air. Numerous smaller opaque yellow spots then become dispersed in it, and at length extend throughout it.

In whatever way tubercles are formed, they terminate, after a period of various duration, by becoming soft, and at length liquid. This softening begins in the centre of each mass, and gradually extends to the circumference. Tuberculous matter at this stage is in two different states: it either resembles a thick inodorous pus of a deeper yellow colour than the tubercles, or it is separated in two parts, one of which is very liquid, more or less transparent or colourless, unless it be tinged by blood; the other opaque, and of the consistence of soft and friable cheese. The latter, M. Laennec says, is particularly found in scrofulous subjects. When the tuberculous matter is completely softened, it opens a passage into some one of the adjacent bronchial tubes; this opening is smaller than the diameter of the cavity left after the evacuation of the matter, and remains fistulous. Many excavations of the above kind generally co-exist; and cavities successively formed often open into each other, forming anfractuons excavations of various forms and extent. Bands or columns of condensed pulmonary tissue, often infiltrated also by tuberculous matter, frequently traverse these excavations. Bayle has stated that these bands were traversed by blood-vessels; but M. Laennec has hardly ever found a vessel of any considerable size in them. The vessels naturally existing in the pulmonary structure are obliterated in those bands. The tuberculous matter, on being developed, presses aside the proper structure of the lungs, and its blood-vessels are found often very large in size, winding about the parietes of the cavities soon after the softening of the tuberculous matter, and forming even part of those parietes. These vessels are ordinarily flattened; they are rarely obliterated; but those of their ramifications which are directed towards the excavation or towards the tuberculous

masses, are evidently so; and liquids injected into those vessels will not pass into the cavities, as Dr. Baillie long since observed.

The ramifications of the bronchiæ appear to be rather enveloped in, than pressed aside by, tuberculous matter; and the compression excited on them, apparently, promptly destroys them, for they can hardly ever be distinguished in the tuberculous masses; and yet it is very rare to find an excavation, however small, in which one or more bronchial tubes of different diameters do not open, and in a direction which makes it evident that those tubes were originally extended through the tuberculous matter. The parietes of those excavations, in proportion as they are formed, become lined with a sort of thin, smooth, soft, and almost friable, false membrane, of nearly an opaque white hue, and which is easily removed by scraping it with a scalpel. Sometimes a finer membrane of the same kind is formed in spots on the sides of the cavities; or such a membrane will exist beneath the former, but not adherent to it, and which is attached more intimately than the former to the texture which it lines. It seems to be the first degree of development of the former. Sometimes neither of these membranes is present, and the sides of the excavations are formed by the pulmonary texture, ordinarily hard, red, and infiltrated by tuberculous matter, in different degrees of development.

From this false membrane, as well as from the bronchial lining, (a very large portion of which becomes involved in the same action,) pus is secreted. At times also blood is poured forth, giving rise to the sanguineous sputa so common in the latter stages of consumption.

If the disease now remain stationary, there is developed, here and there, beneath this false membrane, flakes of greyish-white and semi-diaphanous matter, of a texture analogous to cartilage, but a little softer, and which adheres intimately to the pulmonary tissue. These flakes at length increase so as to unite, completely line the ulcerous excavation, and terminate, as by continuity of substance, in the internal membrane of the bronchial tubes which open into those cavities. Sometimes this cartilaginous substance is of a light-red colour, apparently from a development of very fine blood-vessels; sometimes this formation is as ancient as the tubercles themselves, an affection which constitutes the *encysted tubercle*. It adheres strongly to the surrounding structure of the lungs, but the tubercles it envelopes can be separated from it, although also firmly adherent; and the internal surface of the cyst is then found smooth and polished, although unequal in its surface.

In cases of recovery, the above cartilaginous cyst, forming a communication with the bronchial air-cells, and lined with the polished membrane before mentioned, which has the same character as mucous membrane in general, becomes no longer a source of irritation, and, the unnatural cavity alone remaining, the consumption is arrested. A still more perfect cure is effected if the cartilaginous cysts cicatrize in consequence of an approximation of their sides.

By the above-mentioned processes, then, phthisis is sometimes cured. In almost all cases, however, other terminations ensue. The tubercles coalesce, and form enlarged tubica; and then pressure on the bronchiæ excites a severe bronchitis, which terminates in death, or, if life be more prolonged, the cysts degenerate into foul ulcerations.

The following, then, is the process of pulmonary tubercles: Firstly, diaphanous miliary granulations; secondly, grey tubercles, more voluminous, and yellow and opaque in the centre; thirdly, tubercles entirely opaque, but still of firm consistence; fourthly, softened tubercles, especially in the centre; fifthly, excavations, more or less completely empty; sixthly, the excavations lined by a mucous membrane, and their external covering formed of cartilage; or, on the other hand, an ulcerous cavity secreting pus and blood; lastly, the cartilage cicatrized,

or, fatally and more generally, the substance of the lungs destroyed. It is to be remarked also, that, as in other parts of the body, the tubercular cyst in the lungs sometimes contains varieties of morbid matter, as a medullary or cerebriiform matter, a melanose or black matter, a cancerous matter, &c. It is needless to say that these are hopeless cases, and most distinguishable from each other, or from simple tubercles, during the life of the sufferer. They are fortunately rare.

Our task is now to trace the symptoms which accompany the above-mentioned morbid changes. We have no fear of being contradicted when we say, that, notwithstanding all that has been written on phthisis, the early symptoms of the tubercular formations have never been correctly described. This has arisen partly from the confusion of terms; for, till lately, most authors have treated of chronic catarrh, apostema, vomica, and other insidious diseases of the lungs, under the title of *consumption*; while, in more recent accounts, the same deficiency still exists from the paucity of examples the physician has had an opportunity of witnessing. Not indeed that there is a scarcity of phthisical patients, but because the absence of pain or uneasy sensation prevents them from applying to medical men in the beginning of the disease.

From what we have been able to collect by personal observation and from contemporary authors, we conceive, that a remarkable pallor of the skin, a diminution of perspiration, and a removal of all those trifling cutaneous roughnesses or defæcations from which scarcely any one is entirely free, are among the earliest signs of consumption. To these also is added a feeling of tightness in the chest on unusual exertion, as running or the like. Sometimes this tightness is absolutely a pain; sometimes it is absent, and a mere quickness of breathing follows slight exertions. A peculiar placidity of manner is usually observed in patients at this period, and somewhat of fulness in the face. The next symptom is a cough, which seems to the patient to arise from irritation in the glottis, like that produced by the accidental presence of a husk of corn, or other dry substance. It is familiarly known by the name of an husky or tickling cough. This, which is usually worse towards night, is not however always present. These fugacious symptoms are of course little to be depended on, since they are met with in trifling gastric irritations; but they may serve to direct our attention to the accession of phthisis at an earlier period than it would otherwise have been done.

The suspicion that these symptoms denote phthisis will be confirmed, if hereditary predisposition, or if external symptoms of struma, should also be present. The above-mentioned appearances do not always produce more formidable symptoms. They do so, however, in so large a proportion of cases, that the following description may justly be called the *second stage*. We believe that when it is the first stage, or, to speak more plainly, when phthisis is suddenly manifested, and is rapid in its course, a chronic pneumonitis is always very evident, pain and fever being for the most part met with.

In the progress of this affection, the pallor of the countenance is interrupted by partial flushing of the cheek. This is attended with a sensation of burning heat in the part flushed: it is not confined to the cheek; a sense of burning and redness being often seen and felt round the palms of the hands or soles of the feet. The pulse becomes frequent; a difficulty of lying on one side comes on, attended with pain in some particular parts of the chest, which is increased by sudden changes of position. One portion is generally preferred during the whole disease. The irritation being now communicated to the mucous membrane of the bronchiæ, or the irritability of that membrane being now so far increased that slight variations of temperature affect it with inflammation, the cough, before dry, becomes attended with copious expectoration. The respiration is quick and easily accelerated, and the nostrils are forcibly moved by it. As this dis-

ease advances another grade, and as the tubercles begin to soften and ulcerate, these symptoms become more marked; hectic fever is more manifest, and suffers even- ing exacerbations. Sweats general or partial, but always debilitating, break out; the blood becomes more highly oxygenated, either in consequence of its more rapid circulation through the pulmonary organs, or from its more extensive and close application to the air through the medium of the ulcerated cavities. Hence the phthisical patient acquires, to a great extent, the high romantic and imaginative spirit which has been so often remarked to attend the passage over lofty mountains, situations in which the air is extraordinarily rarefied. Hence the never-dying hope, the absence of all that desponding querulousness which excites our pity, not unmingled with contempt, in viewing the victim of hypochondriac malady. It has been said, indeed, that the amiability, serenity, and gaiety of temper, of the consumptive patient, is rather the result of the temperament that disposes to phthisis than of the phthisis itself; but we believe there are few practitioners who have not observed that the very first approaches of consumption are marked by much less hopefulness than the latter stages; and, even at times when the constitutional disturbance suffers an exacerbation, the spirits are higher than usual.

To proceed with this picture. Cases of recovery are too rare to allow us much to say as to the appearances of amendment. We need hardly caution the practitioner not to be deceived by the cheerfulness of the patient, and by the occasional absence of all ill feeling which sometimes lasts for a day or so. The symptoms which foretell the fatal termination of the malady are well known. All the symptoms are distressingly increased: the quick pulse, the evening exacerbations, the colliquative sweats, the glossy eye, the hurried and difficult respiration, the distended nostrils, and the general emaciation, are all most strongly manifested. To these may be added, diarrhoea and slight delirium. These arrived at the highest pitch endurable by the human frame, the patient calls on the by-standers for breath, snaps with horrid energy at the air, and expires. This afflicting termination only occurs, however, when the patient actually dies from dyspnoea, while the rest of the frame retains to a high degree the powers of life. More commonly, gradual wasting and decay entirely exhausts the sufferer, and he sinks into the grave without a groan.

According to Laennec, the formation of the ulcerated cavities in the lungs may be known by applying the *stethoscope* (so often mentioned) to the chest, in which case the *voice of the patient seems to come through the cylinder*. This phenomenon Laennec calls *pectoriloquism*. The student may make himself acquainted with it by applying the stethoscope to the trachea of any individual, or in lean persons over the infurcation of the bronchiae. The parts of the chest over which the stethoscope is to be applied to ascertain an ulceration in the lungs are the anterior and superior portion, the axilla, the space between the clavicle and the trapezius muscle, and the fossa above and below the spinous process of the scapula. It may be perfect, imperfect, or doubtful. When it is perfect, it is a certain sign of the existence of a preternatural cavity in the lungs. It is more clearly evident in proportion to the acuteness of the voice of the patient; when the voice is grave or hoarse, the pectoriloquism is like the voice coming through a speaking-trumpet or roll of paper. Accidental circumstances sometimes operate to prevent pectoriloquism from being clearly evident: Laennec finds it proper, therefore, to examine a patient several times; and in no case where pectoriloquism was manifest did he fail to recognise, by dissection or by symptoms, ulceration in the lungs.

The above circumstances will distinguish the latter stages of phthisis from chronic bronchitis; but the diagnosis of its first stages is more difficult. In chronic bronchitis the absence of pain during inspiration, the ca-

pability of resting on either side in bed, (when there is no abdominal disease,) the wheezing noise in respiration, the leaden colour of the lips, and the pallidity of the countenance, the appearance of the sputa, consisting almost entirely of mucus, are symptoms which distinguish it from tubercular phthisis. Moreover, the dyspnoea is greater on exertion in tubercular phthisis, and the patient cannot take so large a volume of air into the lungs as he can in bronchitis. The dyspnoea too is less relieved by expectoration; and there is a peculiar sensation of stuffing complained of in catarrh, which does not occur in phthisis. The expectoration is various, but there is always a considerable quantity of mucus mixed with the pus-like matter. The quantity of matter expectorated in the former disease is much greater than in tubercular consumption. The cough also in bronchitis is deep and sonorous. The paroxysms of hectic fever are much less regular in chronic bronchitis than in tubercular phthisis. The perspirations are more, and the emaciation less, in inflammation of the mucous membrane, than in tubercular phthisis, though we do meet with cases in which the emaciation is as great in the former as in the latter affection. When the pulmonic symptoms have arisen from a diseased liver, it is a strong presumption that the seat of the disease is in the bronchial membrane; for in almost all cases of this description the mucous membrane is the part affected. When this combination occurs, the spirits are always depressed; and, in addition to the usual pulmonic symptoms, we have in this form of the disease a painful and distended epigastrium, unnatural stools, and disordered digestion. The mouth is dry in a morning, and the tongue loaded. The fits of coughing are constantly excited when the stomach is overloaded, and are apt to come on when the patient is lying on either side in bed. If chronic have succeeded to acute bronchitis, the emaciation is sometimes so great, the hectic fever so complete, and the matter expectorated so purulent, that a person seeing the disease after it is formed will often be inclined to believe that he has to treat an ordinary phthisis; but an attention to the history of such cases will frequently lead him to distinguish the former affection from the latter; and the event will usually justify his distinction.

The greatest advantage arises from tracing these affections to their origin. We sometimes find that the symptoms have come on soon after the disappearance of a cutaneous affection, which should always lead us to suspect that the bronchial membrane is diseased. Notwithstanding all our attention to the occasional cause by which the disease is induced, to the habit of the patient, and to the modification of the symptoms, in the latter stage of the disease it often becomes impossible to distinguish catarrh from phthisis.

An ignorance of the precise causes of phthisis we have before lamented. We shall put down what is usually said in medical works on this subject. The predisposition is frequently hereditary, descending from parents whom the disease had attacked, or who had, at some period of their lives, been affected with some form of scrofula. It is distinguished by external peculiarities of form and appearance. Persons possessing fine skin, with large veins, soft hair, light eyes, a florid complexion, tall and thin person, long slender neck, narrow chest, and projecting shoulders, may be considered as having the phthisical predisposition. The fine skin and complexion, and slender form, are however much surer emblems of consumptive predisposition than the colour of the hair and eyes; for the disease often attacks dark-haired persons. Broussais refers the consumptive constitution to an extraordinary development in the lymphatic system. Frequent attacks of pneumonitis seem to become causes of consumption. The same may be said of catarrh, of hæmoptysis, or any other diseases which cause increased afflux of blood into the lungs. But as many persons, and even whole nations, suffer pulmonary disease without the sub-

sequent

sequent formation of tubercles, we can only consider the above diseases as assisting the production of, rather than entirely producing, phthisis.

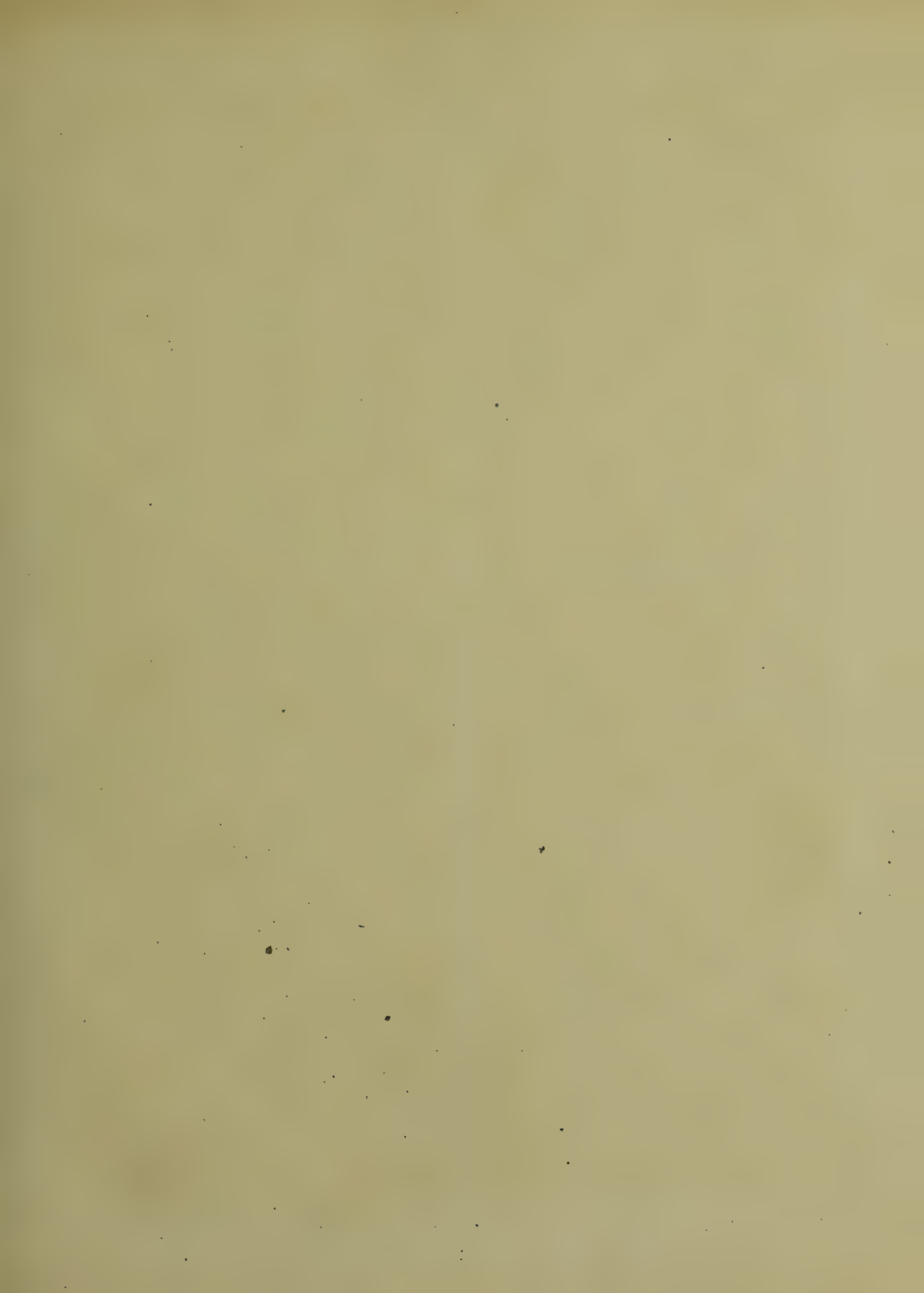
The cause of the frequency of consumption in England has been variously accounted for. It evidently cannot be the coldness of the climate; for in some of the more northern regions of the globe phthisis is scarcely known: nor, when we consider the sudden hurricanes and chilling blasts which occasionally alternate with excessive heat in hot climates, where the disease is equally unknown, are we justified in referring it to the vicissitudes of our climate. Some have endeavoured to prove that the dampness of our atmosphere is the cause of consumption; but in Holland, and other humid situations, the mortality of consumptive patients does not equal that of our own country. It will not therefore seem improbable, that we must look for the cause of consumption in a morbid state of the blood; and that the action of cold and moisture merely determines, by increasing the circulation through the lungs, the elimination of its morbid material to those latter organs. What seems to bear out this explanation is, that the same sort of temperaments most disposed to phthisis are also disposed to tubercular depositions in other parts of the body, if circumstances operate to increase the afflux of blood to those parts. The same proposition receives further proof from the known connexion between long-continued impediment to the functions of the liver and phthisis; and no one can doubt, that inaction of the largest gland in the body must deteriorate the blood. Still further proof is derived from the well-known circumstance, that the absorption of venereal virus does, under certain circumstances, produce consumption: an instance of this we have now under our care.

We consider, therefore, deterioration of the blood one cause of phthisis; debility of the functions of the skin another. That the functions of the skin are injured by cold and moisture, and still more by changes of temperature; that coldness, moisture, and frequency of change, are the actual conditions of the English atmosphere; and that the determination of blood to the lungs is in direct ratio to the inaction of the skin; are propositions which no one will be inclined to doubt. Whoever views, therefore, the exanguineous skin of the person disposed to consumption, and contrasts it with the *rough redness* of those who, through suffering the vicissitudes of climate and the privation of wholesome diet, are nevertheless wholly exempt from its attacks, cannot fail to learn a wholesome lesson as to a mode of preventing consumption. This is, to increase the action of the cutaneous vessels until a permanent vigour of the skin is acquired. As to the means of doing this, much care will be requisite. It will sometimes be necessary to use the warm bath or friction: but, where symptoms approaching phthisis are entirely absent, the cold bath, followed by such friction as will ensure powerful re-action, would be most useful. In doing this, however, we must be careful that the bather does not stop long in the water; and that it be never used except redness and heat of skin follow the immersion. Regular muscular exercise is also indispensable, always taking care that exposure to wet be avoided. The clothing should be warm, but not heavy; and should be so regulated, that, while the skin is prevented from suffering the evil influence of moisture, it is not rendered morbidly sensible by extreme heat. The filthiness of the custom would ever prevent its use in a civilized state; else, considering the stimulating influence of oil on the skin, we should conceive that anunction must be a very powerful agent in strengthening this important covering. To this practice, however, many northern savages probably owe their ability to resist the rigour of their climate. To return to the subject. The above measures should of course be assisted by an attention to the food of the phthisical patient. The reader will observe, that the above remarks apply merely to the bringing up of chil-

dren born of a consumptive stock, or displaying the marks of the consumptive diathesis at an early age.

The treatment of phthisis is now to be discussed; and it naturally arises out of the above description of causes and symptoms. In almost all deteriorations of the blood, some excess of it will, we believe, be generally found; and indeed most authors have seemed to consider bleeding necessary to the treatment of phthisis. Even if plethora did not exist generally, the inaction of the skin would of course throw a greater proportion of blood than ordinary into the larger vessels, and consequently into the lungs. At all events, the propriety of bleeding is pretty generally allowed. This evacuation should therefore be made in small quantities at a time, and according to the degree of pain, the rapidity of the attack, and the hardness of the pulse. In the earliest periods of the disease, the bleeding will require to be regulated rather by the fulness of the pulse than by any other sign. If we are called in at this period of the disease, our attention should be carefully directed to the removal of all distant irritation; for often the disease of other parts of the body, especially of the liver, is the cause of phthisis. If this be not the case, and the malady we have to treat be strictly idiopathic phthisis, the skin must be excited, the regulation of diet very closely attended to, and the patient placed in a situation in which the debilitating influence of cold and moisture is carefully excluded. The warm bath, the flesh-brush, and a regular use of antimony in such doses as not to nauseate or produce sweating, are all the means we are possessed of for fulfilling the first indication. The second must be the business of the patient. It is impossible to lay down any exact rules as to what food, or what proportion of it, should be used by the consumptive patient. There is no doubt in our mind, that much, very much, may be effected by what we have before called the dyspeptic treatment, in curing phthisis. Not indeed that we are sanguine enough to suppose that this will bring about the absorption of the tubercles; but certainly, if it improves the morbid condition of the blood, it will prevent their increase, and it will exert a very beneficial influence on the curative processes which the tubercles undergo in their progress to excavation and cicatrization. A concentrated form of diet, as jellies, milk, and mucilaginous preparations, has obtained a popular fame as a regimen for consumptive patients, but probably without deserving it. Indeed, considering that in phthisis the action of the stomach does not seem much impaired, we should rather advise sparing quantities of meat or vegetables, since with them the natural juices of the stomach and bowels would be mixed, and consequently the quality of the blood most probably improved. We are doubtful whether abstinence should be carried merely to the extent of improving the digestive and assimilative powers, or whether it should be so far enforced as to produce emptiness of the system. The latter practice, steadily persevered in, has certainly succeeded in removing a variety of morbid growths on the outside of the body; and, from the result of some few cases which have come to our knowledge, we are inclined to favour its adoption in phthisis. The excellent Broussais also speaks well of it. Dry feeding has also been recommended by some; and, as it is pretty well ascertained that nutrition goes on but slowly, even from large quantities of food, unless a certain proportion of drink be taken, this may have operated in the same way as rigid abstinence, but it is by no means so effectual as actual abstinence. It is needless to add, that stimulating drinks should be forbidden in consumptive cases.

The third indication, i. e. that of placing the patient in a favourably-constituted climate, is next to be attended to. A variety of places have been recommended for consumptive patients: these have generally been selected in warmer climates, on the supposition that the cause of consumption was the coldness of our atmosphere. But an high temperature is by no means enough to ensure
alleviation



alleviation to the phthical patient. Many places in hot climates are exposed to bleak winds: often the winter is as bleak as our own. The most proper situation is one in which *equability* of temperature throughout the year, protection from wind, and density of air, are continued. The occasional cold induced by blasts of wind renders the situation of Rome, of Pisa, and even of Nice, objectionable. A place called Villa Franca, a short distance from Nice, has been recommended as a spot in which the temperature is uniform, the site low, and the soil fertile. But, where pecuniary resources are wanting, or where the comforts of the native country are relinquished with regret, a situation may be found at home, scarcely if at all inferior to the boasted climes of Italy. The lower parts of the well-sheltered Devonshire have long been held in repute for the phthical patient; and Dr. Foster, in a recent work on the "Climate of Penzance and Land's End," has shown that the latter places are superior even to that. The contrast of Penzance with the famous places of resort in Italy, is much in its favour, as will be seen by the following Table.

Fahrenheit's Thermometer.	Time of Observation.	Dec.	Jan.	Feb.	Mar.
Nice, 3 years, (1815-1817)	sun-rise	44	44	47	45
Pisa, (1814-1816)	sun-rise	42	40	43	41
Rome, (1815-1817)	7 A.M.	42	41	43	42
Penzance, (1815-1817)	7&8 A.M.	42	41	44	42

The benefit consumptive patients derive from a sea-voyage has induced many to suppose that the sea-coast must be an advantageous situation. This notion has been confuted, however, by recent observation. Mr. Mansford especially (see Mansford on Pulmonary Consumption) is of opinion, that the vicinity of the sea should be sedulously avoided. This author considers that low inland situations which enjoy a tolerably equable and somewhat warmer temperature, with a seclusion from the keen blasts of the north and east, are the situations to be selected from those who are suffering under pulmonary consumption. On reviewing various points in our own island, Mr. M. thinks no place presents so many requisites for the residence of consumptive patients as the low ground which extends southward from the Mendip Hills; of which he thus depicts the leading features: "Its geographical position is in the south-western part of the island. The shelter afforded by the range of hills towards the north, and the lowness of its level, while spots may be chosen just sufficiently raised above the marshy lands to escape the prejudicial and chilling influence of concentrated moisture, without being so high as to defeat the object in view, point it out as one of the most eligible. To these advantages of a physical nature may be added others of a more obvious and inviting character. The varied and romantic scenery of the neighbourhood does not fail to charm those who possess a relish for the beauties of nature; while the tastes and habits of individuals may be gratified in the society of a city, or the seclusion of a village."

Now with regard to the drugs which have procured a name in the cure of consumption, we shall pass over the lichen, stramonium, tar-vapour, with a host of others, because the shortness of their reputation has too clearly indicated their inutility; and pass to the consideration of two medicines which are now much in vogue; viz. the digitalis and the prussic acid. Those who give the former drug very properly confine its administration to cases in which it has the effect of abating the arterial action. This however is only to be found by its exhibition; for we are not acquainted with the external appearances which designate the constitution in which digitalis accelerates rather than depresses the pulse; it should be given in very small doses, and gradually increased. Though unable to explain its *modus operandi*, we may remark, that a combination of very minute doses of this drug, as

a quarter of a grain given every night with half a grain of calomel, has done much good, and this in cases where no hepatic disorder was apparent. We make this remark because it is well known, that, in phthisis accompanied by disordered liver, a cure is often effected by the gradual use of mercury; and hence many pathologists confine its exhibition to liver-cases.

The utility of digitalis, when exhibited with the above-mentioned restrictions, in conjunction with other measures, and not as a specific, no one will doubt. Of the prussic acid we cannot say so much. Indeed, the distinguished authors who have introduced it not having stated the peculiar effects of the drug, and having described it as a specific capable of curing phthisis in an early stage, and alleviating it when advanced, we can only say, that it appears to us very extraordinary, that the same medicine should promote the removal of a tubercle and the cicatrization of an ulcer, since these operations appear essentially different. Moreover, in the cases in which we have tried the prussic acid, a few have been made worse, and none have recovered. Nevertheless it is very probable, that, if we knew more of the precise operation of this medicine, and the time at which it should be used, it might prove a useful auxiliary to the treatment of phthisis.

Exercise, by various modes of gestation, has been frequently employed as a remedy for consumption. Sydenham indeed asserted, that riding on horseback is as effectual in the cure of phthisis pulmonalis, as the bark in agues, or mercury in the venereal disease, provided the journeys be long enough. An example is related in Dr. Darwin's *Zoonomia*, vol. ii. (the case of the late ingenious Dr. Currie of Liverpool,) in which an hereditary phthisis was removed, by persevering in a daily journey; at first in an easy carriage, and subsequently, as the strength increased, alternately in the carriage and on horseback. Some physicians, however, are of opinion, that exercise on horseback is rather pernicious, than otherwise, in phthisis. *Sailing* seems to be considered at present as the most efficacious mode of gestation, especially if a long voyage is taken, with the double recommendation of removal to a warmer climate. As a sort of substitute for this kind of gentle motion, *swinging* has been recommended as a remedy for phthisis; and Dr. Carmichael Smith has written a treatise in its favour. In the use of any or all these modes of gentle exercise, however, the same precept must be pursued; they must be resorted to *early* in the disease, and varied with the feelings of the patient.

When the disease proceeds favourably, the same treatment as to regular exercise, pure air, and nourishing diet, is to be persevered in; and the digitalis and other powerful drugs discontinued. When the ulceration of the tubercles is attended with bad symptoms, we can only alleviate the suffering of the patient. It will be too late to send him to a foreign clime, or perhaps to allow exercise. The keeping-up of a regular degree of temperature in spacious apartments, the occasional use of narcotics, among which opium combined with sulphuric acid, poppies, and lactucarium, hold the chief rank, comprises all that can be done for the palliation of symptoms, and the prolongation of a wretched existence.

Genus IV. *Cyrtosis*, [from *κύρτος*, curved.] Rickets, or curved spine. Generic characters—Head bulky, especially anteriorly; stature short and incurvated; flesh flabby, tabid, and wrinkled. There are two species.

1. *Cyrtosis cretiniformis*, Cretinism: chiefly affecting the head and neck: countenance vacant and stupid; mental faculties feeble or idiotic; sensibility obtuse; mostly with enlargement of the thyroid gland: hereditary.

The term Cretinism is usually applied to the idiotic and incurvated patients; bronchocele to the same disease connected with enlargement of the thyroid gland. In this system Cretinism embraces both. Cretins are

never found but where goitres exist, though the latter are often found without cretins. This seems to show that only a more powerful application of the common cause is necessary to produce cretinism.

The precise nature of cretinism is unknown. It is supposed to be a malady closely allied to scrofula. The same may be said of the next species. It is well established that cretinism is a disease of low and moist regions. Professor Fodéré, in his *Voyage to the Maritime Alps*, had occasion to make numerous observations tending to prove the truth of this opinion. Bronchocele, or goitre, and cretinism, accompany each other in the maritime Alps as they do in the Swiss mountains. Here, as well as in the valley of Aosta, Maurienne, and the Valais, they are not found in elevated regions; they are not seen at Saint Dalmas le Sauvage, nor at Molinet, nor at Tende and Briga; the maritime places, as well as cold and dry, or hot and dry, elevated regions, are exempt from them: but they are commonly met with in the humid parts of both the northern and southern regions, at the foot of the secondary Alps. They are most frequent in the valley of Visubia; and at Saint Martin de Lantofca the greatest part of the population has goitres; there are here, also, fifty cretins from birth: from hence we rise to Val de Blora, and those infirmities are no longer seen; but, on descending again into the valley Tinée, they are constantly observed until we arrive at Saint Etienne, where not a cretin was to be found. In general, in the valley Tinée, the inhabitants of the hamlets on the borders of the river which runs through it, are subject to goitre and cretinism, whilst those of the hamlets situate on the more elevated parts are free from them. The Valley la Roja presents also striking examples of the same kind: there is not a cretin or goitre to be seen in the chief village in it, which is situate on high ground, whilst they are numerous in the immediately surrounding region, which is comparatively low. The whole of the author's observations serve to confirm his former remark, that goitre and cretinism exist and take their course with the degree of the humidity of valleys, in all temperatures and climates.

In the United States, Dr. Gibson informs us, bronchocele prevails as an endemic. It is very frequent in many parts of Lower Canada, especially near the marshes between St. John's and Montreal. At Detroit, Lake Ontario, Oneida, Erie, Huron, and among the Tufcorora, Seneca, Oneida, and Brothertown, Indians, it is very common. In many parts of the state of Vermont, especially Bennington and Chittenden, bronchocele is well known. It is also found at Camden, Sandgate, and Chester, in the same state. Sandgate, some years ago, contained 1020 inhabitants, and out of that number one fourth of the females were affected with the disease. According to Dr. Trafk, bronchocele is so common a disorder at Windsor in Vermont, that hardly any female is exempt from it. In the state of New York goitre prevails principally in the neighbourhood of Old Fort Schuyler, the Oneida-village, the German Flats, Fort Herkimer, Fort Dayton, Henderson-town, Onondago-valley, Canafaraga, Brothertown, the township of Manlius, and the whole of the military district. At Angelica, in Alleghany-county, state of New York, goitre is a very frequent complaint. In Pennsylvania, where bronchocele is very common, it is found chiefly at Pittsburgh, on the waters of the Alleghany, Sandusky, Monongahela, French Creek, Cannonsburgh, Brownsville, and throughout the county of Somerset. In some parts of Virginia, especially at Morgantown and on the banks of Cheat-river, it is by no means unfrequent. In certain situations on the western shore of Maryland, and in North and South Carolina, the disease is occasionally met with. It is probable, indeed, that goitre may be found as an endemic disease in almost all the mountainous and marshy districts throughout the United States. All writers on the complaint agree that it generally prevails in valleys at the bottom of the highest mountains, which are particularly

exposed to the influence of easterly and southerly winds. In those situations, moreover, where the temperature is mild and uniform, where the atmosphere is moist, in the neighbourhood of rivers, of falls or lakes, or of the sea, where the soil is rich and the habitations surrounded by fruit-trees, goitres are commonly found.

We shall now speak of the English, or curable bronchocele. The seat of this disease is the thyroid gland, which lies just below the larynx, round the trachea. The tumour appears in the fore-part of the neck, between the skin and the wind-pipe. Women are the most frequent subjects of it; and in them it usually appears early. Dr. Hunter met with one case of this kind in a young surgeon; but it is rarely happens in males.

The cretiniform bronchocele is a tumour arising on the fore-part of the neck; it generally first appears some time betwixt the age of eight and twelve years, and continues gradually to increase for three, four, or five, years; and sometimes the last half-year, we are told, it grows more than for a year or two before. It generally occupies all the front of the neck, for the whole thyroid gland is enlarged; and it is of a pendulous form, not unlike, as Albucahis says, the flap or dewlap of a turkey-cock, the bottom being the larger part of the tumour. In figure, it varies considerably in different cases. It is soft, or rather flabby, to the touch, and somewhat moveable; but, when it has continued some years after it has ceased to increase, it becomes more firm or confined. By the situation and nature of the complaint, it generally occasions a difficulty of breathing, which is increased on the patient's taking cold, or attempting to run. In some the tumour is so large, and so much affects the breathing, as to occasion a loud wheezing. Patients, however, sometimes suffer but little from a large tumour, while others suffer much from an inconsiderable one: in general, however, it occasions little inconvenience. Dr. Hunter observed, that the tumour now and then suppurates.

The bronchocele should be distinguished from a schirrus, from an aneurism, and from those swellings in the neck that arise from strains or ruptured vessels. The distinction however is not difficult.

An issue, or a perpetual blister, applied on some other occasions, has apparently prevented the growth of the bronchocele, though the effect continued only during the irritation. It cannot be extirpated, as it is entangled with the recurrent nerve, and the first branch of the external carotid artery; and, if by chance a suppuration is formed, an ill-conditioned ulcer, difficultly cured, is the consequence. In addition to the above directions, attention to the state of the general health, and the regular exhibition of large doses of uva ursi, or soda, comprehends all the treatment. If not cured before the age of puberty, at which time it sometimes amends spontaneously, little success can be anticipated.

This applies to the common bronchocele of this country. Occurring under the form of cretinism, as seen in the alpine regions, we are not aware that any treatment has been very successful. Dr. Wylie, of Peterburg, is said to use, with good effect, friction with an ointment composed of $\frac{3}{4}$ ss of litharge ointment, 3j of calomel, and gr. x. of tartrate of antimony. And we learn in the Appendix to Dr. Clark's "Notes on France, Italy, &c." that M. Quadri thinks highly of the treatment by seton. "I find," says he, "that all goitres of a soft consistence, and not arterial, were cured quickly and safely by the seton. Of twelve individuals on whom the operation was performed, eight were perfectly cured." Probably removing to a higher situation, and living in the best manner, might in the course of a few generations exhaust the disease. See CRETINS, vol. v.

2. Cyrtosis rachia, the rickets: chiefly affecting the limbs and body; spine crooked; ribs depressed; articular epiphyses enlarged and spongy; belly tumid; mental faculties clear, often premature.

Usually the first appearance of rickets is in the eighth or

or ninth month of the child's age. The several parts of the body by degrees become disproportioned; the skin grows lax, the belly flaccid; the muscles are extenuated, particularly those of the neck; the joints of the hands, arms, knees, and feet, are enlarged, so that there seem to be excrescences on the bones of the wrists and ankles; the bones and the spine, too weak to support the body, are at length incurvated; the child walks with more difficulty, until this exercise becomes too troublesome to be continued; the carotids and jugulars swell, but the other blood-vessels disappear; the head grows large; the sutures are more visible; the fontanel is often membranous; the neck too weak to support the head steadily. The countenance is, however, lively, and the child is more sensible than usual at the same age; the breast is strait, and compressed on its sides; the sternum rises up in a point, and the extremities of the ribs are enlarged and crooked; the hypochondria swell; fever, with symptoms of consumption, comes on, and the patient sinks from debility. In children predisposed to rickets the teeth come forward slowly, and soon decay. The appetite, however, seldom fails; but digestion is mostly imperfect.

The rickets chiefly prove fatal from the attending hectic, consumptive symptoms, or asthma. If the disorder continues after the fifth year of the child's age, the body usually continues weakly and deformed for the whole life. The bones of the legs, though very crooked, will become nearly, often perfectly, straight during the growth of the child; if it becomes strong and healthy. On dissection, the muscles are found pale and flaccid, the liver indurated, the mesenteric glands enlarged and hardened, the bones spongy. Its usual period of attack is from six months to two years; but it has attacked adults. The top of the spinal marrow is said to have been uncommonly hard and obstructed; water is sometimes found between the dura and pia mater; and the brain is enlarged.

The immediate cause of rickets is the want of a due proportion of phosphate of lime in the bones. The remote causes of this deficiency are disordered state of the digestive organs, in consequence of which bad blood is prepared, and inaction in the vessels which secrete the healthy part of bone. The means employed in the treatment are the same as in that of dyspepsia; viz. regular *passive* exercise, bathing, medicines which slightly stimulate the stomach, those which open the bowels, and those which promote the secretion of bile; nutritive diet, and country air. Months and years will often elapse before a cure is effected; it is in all cases a tedious affair.

Genus V. *Alphosis*, [from *αλφος*, white.] White leprosy. Generic characters—Cuticle, among negroes, white and colourless; hair white and woolly; irids white; pupils rosy; sight strongest in the shade; corporeal faculties feeble; mind unimpaired.

There is but one species, which is the Albino, or White Moor. See the article ALBINOS, vol. i. p. 240.

A variety is found among Europeans with fair cuticle; flaxen hair; irids blue; pupils rosy; corporeal powers weak; mind unimpaired. *Truill*, in *Nicholson's Journal*, Feb. 1808.

"The whiteness is probably produced by a want of the secretion of the pigment that renders the rete mucosum black; and which does not usually take place till several weeks, sometimes months, after birth; the negro-child being fair when first born." The Spaniards and Portuguese denominate those who are thus affected *Albinos*; the French, *Blafards*; the Dutch, *Kacklacken*.

Genus VI. *Struma*, [from *σπρωμα*, Gr. coarvation; not, says Good, from *struo*, Lat. to heap up.] Scrofula, or King's Evil. Generic characters—Indolent glandular tumours, chiefly in the neck; suppurating slowly,

and imperfectly, and healing with difficulty; upper lip thickened; skin smooth; countenance usually florid.

The best division of Strumais derived from its external or internal appearance. Dr. Good's classification accords with this principle. It is long since Mr. Abernethy referred to disorder of the digestive organs scrofulous disease; and the same opinion has been taken up by Dr. Carmichael Smyth, and more recently by Mr. Lloyd. Neither of these authors, however, has advanced the etiology of the disease one step. Its connexion with disorder of the digestive organs no one can fail to see; but the mode by which the latter act on the former is by no means apparent. We are very well able to ascertain how dyspepsia disturbs the nervous and vascular systems of remote parts; but, when we come to consider it in relation to scrofulous disease, we ask why every intense dyspepsia does not produce scrofula in situations and external circumstances favourable to its development. If it be answered, that dyspepsia produces scrofula only in constitutions *predisposed* to the latter malady, we ask in what this predisposition consists. We have already shown, that a predisposition to inflammation consists in a want or an excess of contractile power in the vascular system; and that a predisposition to nervous disease consists in an habitually higher degree of sensibility in particular nerves. But the predisposition to scrofula is by no means clearly made out. Broussais indeed refers the scrofulous constitution to a preponderance of the lymphatic system over the nervous and vascular systems. Upon the whole, it must be allowed by all, that the nature of the disease called scrofula is at present unknown.

Some recent authors have comprised under the term scrofula a very large proportion of the chronic phlogotica; but, it seems to us, without just cause. We shall confine ourselves in this article to the term in its older and more restricted sense. There are two species.

1. *Struma vulgaris*; confined to the external conglobate glands: tumour pea-sized, or chestnut-sized; appearing in infancy or youth; subsiding on mature age; hereditary.

Two conditions of the body are to be described in treating of scrofula. The first, the appearance of the person predisposed to scrofula; and the second, the appearance of the disease when formed. The scrofulous constitution is observed to be, in many instances, denoted by particular symptoms. It has been said that the complexion is fair, and the colour of the hair either reddish or of some other light tint; but people with dark complexions and black hair are equally subject to scrofulous complaints. The skin is remarkably soft and white, and the face often has a shining polished smoothness. The cheeks are in general florid; and the tunica albuginea is frequently of a dead white colour, and more pale than usual. The edges of the eye-lids are affected with a degree of tenderness which easily degenerates into a troublesome inflammation, that distresses the patient by its continuance, and produces a disagreeable degree of deformity. This redness is very common and remarkable. There is likewise very frequently a swelling of the upper lip, with some thickening of the nostrils and point of the nose.

One of the most frequent symptoms of scrofula is a swelling in the superficial lymphatic glands, especially in those of the neck. Such glands swell without any previous complaint, and often attain a large size before the swelling attracts notice. The swellings are frequently unaccompanied with pain or discoloration. The same indolence and absence of inflammatory symptoms, which characterize scrofulous swellings of their glands, likewise distinguish similar affections in other parts of the body. The commencement of the attack is, in general, unperceived, and the progress slow; though the tumefaction which follows is frequently very considerable.

The greater number of scrofulous affections are accompanied with a preternatural swelling of the parts attacked. The tumour is of two kinds; one remarkable for its soft-

ness,

ness, the other of a more firm consistence. Soft scrofulous tumours are always formed by the effusion of a fluid; and it may be remarked that they are somewhat variable in their size, being one day more prominent and tense, the next more sunk and flaccid. When they are opened in the early state, they are found to contain nothing but a ferous fluid, which lies in the cells of the cellular membrane. As the fluid is not contained in one common cavity, the tumour has a soft flabby feel, and imparts to the fingers of a surgical examiner no distinct sensation, either of elasticity or fluctuation. But, when the fluid has been for some time effused, a striking difference occurs, a fluid lodged in a particular cavity now being evidently perceptible. This change seems to proceed from the destruction of the partitions which are between the cells of the cellular substance. As these collections, however, are not accompanied with any sensible degree of inflammation, they are not surrounded with a firm, solid, circumscribed base; and they do not betray any great tendency to ulcerate the skin, and burst of their own accord. Hence they sometimes become very prominent, and the skin is gradually distended to a surprising degree.

The matter contained in such tumours also undergoes a change. After a time, the more solid parts are deposited in the form of little masses, resembling coagulated milk. The remaining portion of the fluid is rendered thinner, and resembles whey. A quantity of purulent matter is also formed on the internal surface of the cavity, which seems to be attacked with a slow kind of inflammation. The admixture of this purulent matter greatly changes the appearance of the contents of the tumour, and they now bear more resemblance to those of a common abscess. They never acquire, however, exactly the properties of healthy purulent matter, being always thinner, more transparent, and more of a greenish colour.

Although the tendency to ulceration is not considerable, the skin at length gives way, and allows the matter to escape through a narrow opening. After the contents are evacuated, the tumour subsides; but, there being in general little disposition in the parts to heal, a scrofulous sore is usually formed, which discharges unhealthy matter, and continues open for an indefinite length of time.

The other more firm kind of scrofulous swelling always increases slowly, and most commonly attacks the neighbourhood of joints. The affected part enlarges, without acquiring any circumscribed determinate form. By degrees the tumour becomes softer; and at last particular portions near the surface become more prominent, inflame, suppurate, burst, and discharge matter. But, as the suppuration is only partial, and the discharge inconsiderable, they have little effect in diminishing the size of the swelling, or in producing any other change of importance. The only difference occasioned is the addition of little ulcerations, which lead to sinuses, and emit matter.

A common abscess, in a person of a scrofulous constitution, often exhibits appearances which betray the diseased state of the system. The matter first secreted is formed with extraordinary rapidity; the swelling is somewhat more transparent, the surface more shining, and the colour of the tumour more blue, than is observable in a case of healthy abscess. Scrofulous abscesses also contain, before they burst, a larger quantity of purulent matter, in relation to their size, than common phlegmonic abscesses. When abscesses in scrofulous patients burst, an empty cavity is not left; but there is seen a mass of cellular membrane apparently deprived of life. It resembles wet cotton, and often separates in the form of a solid mass. The separation is effected without pain. This state of the cellular membrane bears some remote analogy to the death of the central parts in a carbuncle; but it differs from the latter disease by there being no malignity, pain, nor danger.

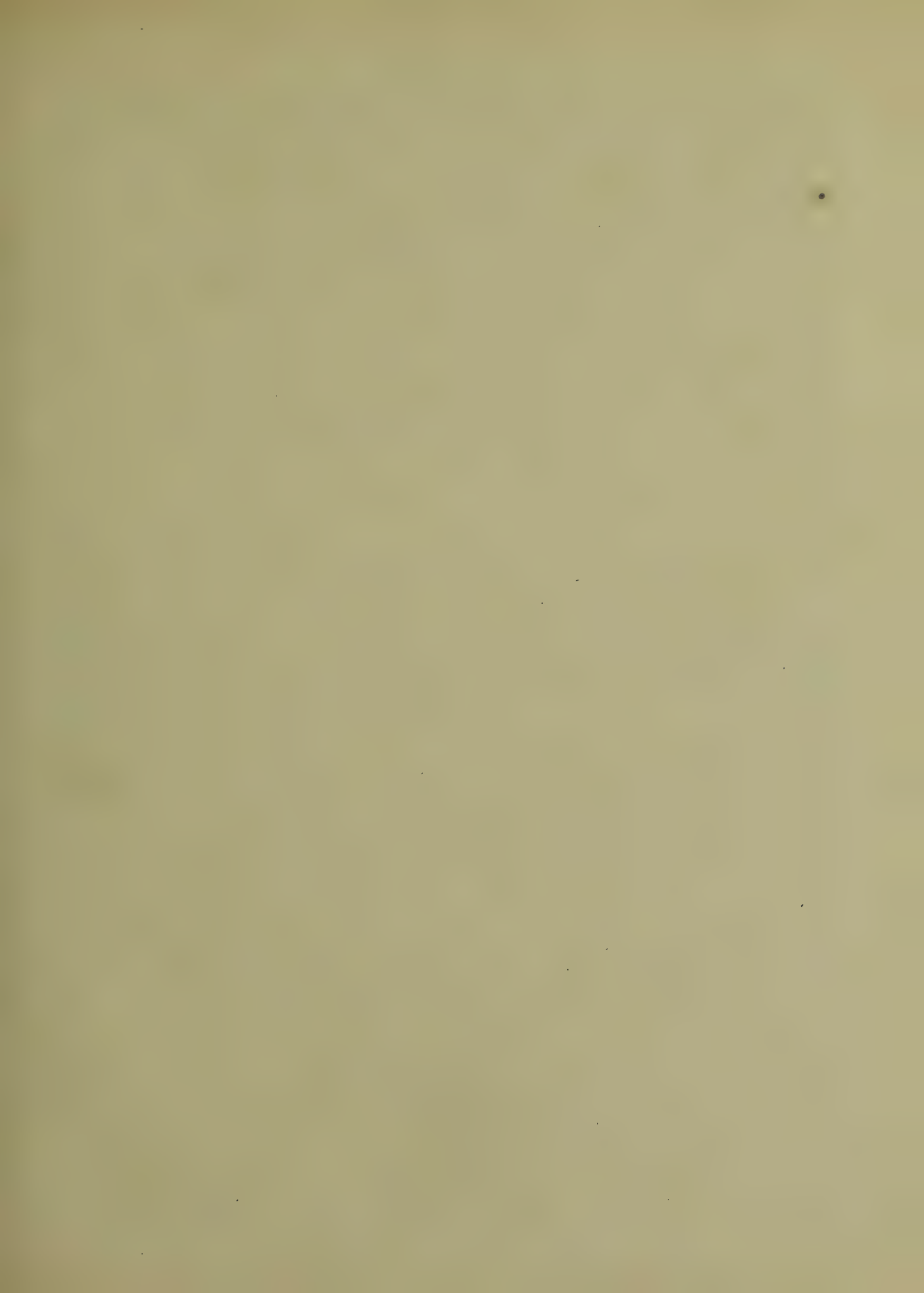
The bones of scrofulous people partake of the general disease in the constitution; they seem to contain a smaller proportion of the phosphate of lime, and a larger one of gelatinous matter, than what exists in the composition of a healthy bone. They are also exceedingly susceptible of morbid action. The particular changes, however, induced in the bones by scrofula, are not to be treated of in this place.

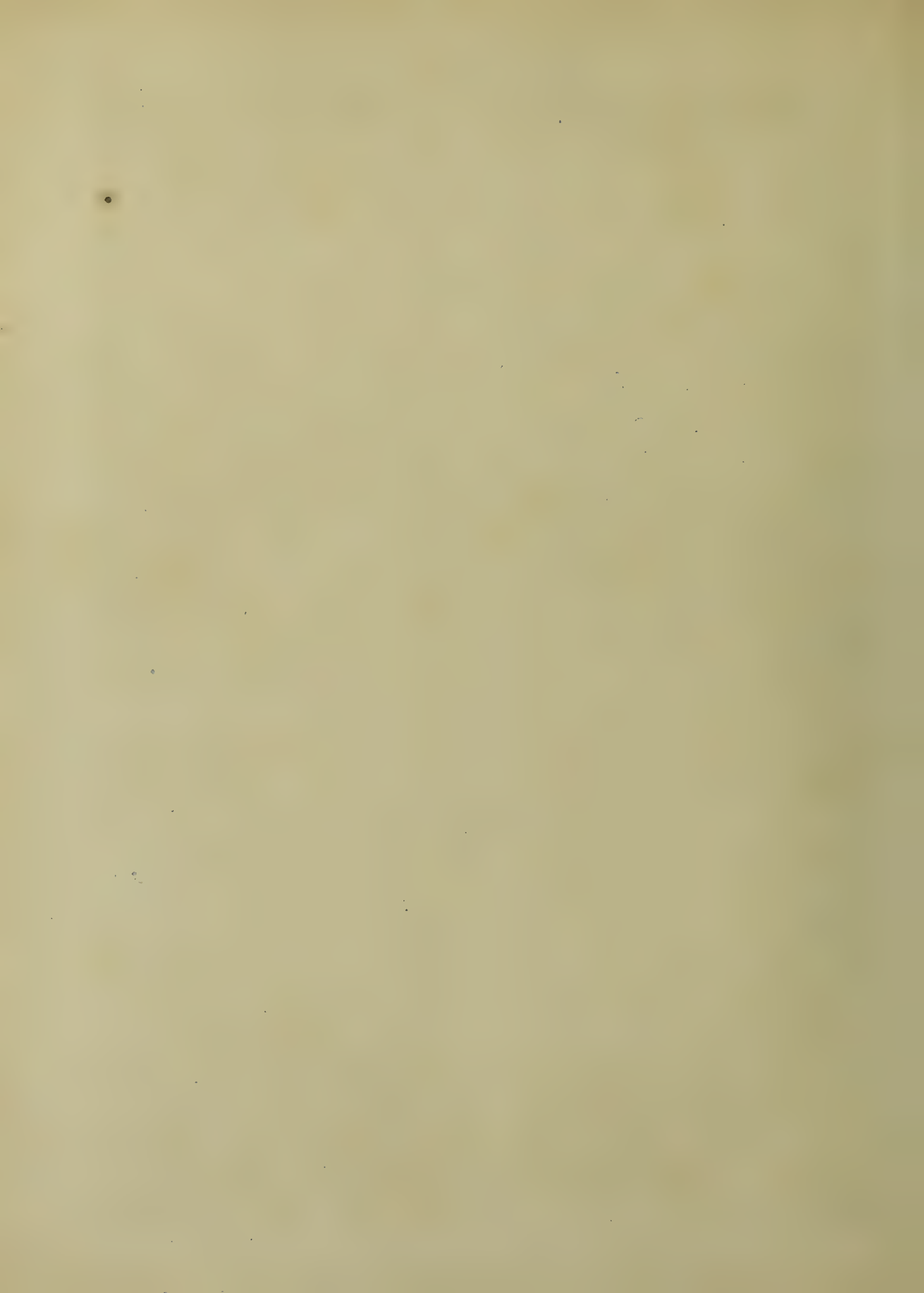
With regard to scrofulous ulcers, their margin is commonly of a pale red or purplish cast, with a shining surface; the edges in general thin; and the surface of the fore sunk somewhat below the level of the surrounding parts. These sores are mostly attended but with a small degree of inflammation, and little pain; they are not very sensible, and have no great disposition to spread. The matter discharged from them is viscid, having very little colour, and often an offensive smell. In consequence of its viscosity it adheres to the surface of the sore, and covers the granulations. It is to be observed, however, that scrofulous ulcers sometimes assume a more malignant aspect, having elevated indurated edges, and fungous central granulations, accompanied with pain and an ichorous discharge. In these cases, they may counterfeit the appearance of cancerous ulcers; but, though the resemblance may be very imposing, we are in general able to ascertain the real nature of the case, by tracing its history from the commencement, and by inspecting the rest of the patient's body with accuracy; when the vestiges of former scrofulous sores, or other proofs of a scrofulous constitution, often manifest themselves.

Scrofulous sores often continue to discharge for a long while, with very little change of appearance. In time, however, they begin to heal, and, for the most part, dry up altogether at last, leaving a very ugly red irregular cicatrix, upon which the skin seldom recovers its natural look. In general, scrofulous complaints are most troublesome in the spring, and get better towards the end of the summer.

Scrofula is an hereditary disease. It is doubtful whether it can be communicated by contact, or even inoculation. Körtum tried to transfer scrofula from one person to another by inoculation; but, although he took great pains to insert the matter completely, and repeated the experiment frequently, yet all his attempts failed, as no disease was communicated to the person inoculated, nor even any very evident irritation excited at the place where the matter was inserted. Yet it is unquestionably propagable by transfusion of blood from the diseased horse, not only to other horses, but to asses, as has been lately proved by professor Coleman at the Veterinary Institution.

The remote causes of scrofula are well established. Every circumstance capable of prolonging for a certain space of time irritation of the bowels; an alteration in the quality of the blood from injuries of the nervous system; and, above all, a cold and humid atmosphere; will produce scrofula. The last cause is perhaps the most frequent of all. The means of cure are therefore obvious. The same regulations that we have advised under phthisis, for exciting and strengthening the skin, are to be put in force. The diet should be regulated; the secretions of the mucous membranes gently excited. In performing the first indication, much stress has been laid by Mr. Lloyd upon the necessity of warm clothing. This is a very important matter. Flannel should be worn next the skin; and the patient should use every means in his power to keep up a regular temperature of the body. For this purpose, the dress should be as heavy at one period of the day as another; and the practice of sleeping under too many bed-clothes avoided; there being good reason to believe that a great majority of persons err in this latter respect. Cold bathing, *when followed by re-action*, should also be enjoined; and the patient should remove to a less humid air than that in which he has been accustomed to live. The regulation of the digestive organs embraces





embraces modifications of dyspeptic treatment obvious enough. The bowels are to be kept regular; and the hepatic secretion excited, if depraved in quality or deficient in quantity. For opening the bowels, the mildest purgatives only must be used, irritation of the mucous membrane being sedulously avoided; for irritating cathartics *aggravate* the disease. According to the condition it happens to be in, the stomach will require to be excited by gentian, steel, and aromatics; or, on the contrary, to have its morbid secretions corrected by sedatives and alkalies. The diet will be regulated by the same criterion. In most cases solid animal food may be allowed; but this of course will depend on the powers of digestion, since, if the food be not properly digested, little must be taken, and that reduced to a pulpy consistence. If morbid growths are large, and their continuance dangerous, much may be effected towards their dissolution by extreme abstinence, and the exhibition of small doses of antimonials daily. The external treatment of scrofulous tumours, ulcers, &c. is obvious. Little, in the majority of cases, need be done. If they put on an inflammatory appearance, the usual means for the reduction of inflammation is to be put in force; if they are indolent, slight irritants, or, as the case demands, counter-irritants, must be resorted to. The treatment of scrophulous ulcers and abscesses will receive further notice under the article SURGERY.

2. *Struma mesenterica*: affecting the mesenteric glands; countenance pale; appetite infirm; abdomen tumid; excrements usually peculiarly fetid.

The nature of this species of scrofula is pretty evident. The application of irritating matter to the termination of the mesenteric absorbents is the primary cause. This irritant is either improper food, or food undigested in consequence of dyspepsia. The irritation on the oral extremities of the absorbents causes an inflammation of their vessels, which is communicated to their glands; the inflammation destroys in a great measure the absorbing property of the vessels; and, when the inflammation terminates in deposition of morbid matter, as tubercles, &c. those properties are entirely lost; consequently the supply of chyle to the blood is stopped, emaciation and debility follow, and the patient dies. The detail of symptoms is sufficiently full in Dr. Good's definition. As to the treatment of the malady, this is to remove the exciting causes; under which plan, during its early stages, the disease may be removed. Gentle doses of calomel, althelminotics, wholesome diet, and the other measures used in the treatment of diseases arising from gastric, bilious, or intestinal, irritation, are to be adopted. In the latter stages of the disease, extreme abstinence appears to be the only means capable of arresting the deposition of tuberculous matter. Dr. Uwins has related a case, in which very minute doses of digitalis, we believe one drop, gradually increased, effected a cure. Most practitioners trust to small doses of calomel and opium.

The symptoms of this complaint are very similar to what Dr. Gregory has called "scrophulous inflammation of the peritoneum." It is very nearly the same complaint, except that the irritation does not seem to be derived from the intestines. The treatment of this latter disease, with the addition of occasional blistering, is the same as in the *Struma mesenterica*.

Genus VII. *Carcinus*, [from *καρκινος*, cancer, a crab; on account of the cancriform or crab-like ramifications of the dark diffused veins of the tumour.] Cancer. Generic characters—A scirrhus livid tumour, intersected with firm whitish divergent bands, chiefly of the fecerent glands; pains acute and lancinating, often propagated to other parts; terminating in a fetid and ichorous ulcer. Dr. Good makes but one species.

Carcinus vulgaris: tumour burning, knotty, with dark cancriform varices; ulcer, with thick livid retorted lips.

A hard unequal tumour that is indolent, and with-

out any discoloration in the skin, is called a *scirrhus*; but, when an itching is perceived in it, which is followed by a pricking, shooting, or lancinating, pain, and a change of colour in the skin, it is usually denominated a *cancer*. It generally is small in the beginning, and increases gradually; but, though the skin changes to a red or livid appearance, and the state of the tumour from an indolent to a painful one, it is sometimes very difficult to say when the scirrhus really becomes a cancer, the progress being quick or slow according to concurring causes. When the tumour is attended with a peculiar kind of burning shooting pains, and the skin hath acquired the dusky purple or livid hue, it may then be deemed the malignant scirrhus, or confirmed cancer. Mr. Pearson further adds, when thus far advanced in women's breasts, the tumour sometimes increases speedily to a great size, having a knotty unequal surface, more glands becoming obstructed, the nipple sinks in, turgid vessels are conspicuous, ramifying around, and resembling a crab's claws. These are the characteristics of an occult cancer on the external parts; and we may suspect the existence of one internally, when such pain and heat as hath been described succeed in parts where the patient hath before been sensible of weight and pressure, attended with obtuse pain. A cancerous tumour never melts down in suppuration like an inflammatory one; but, when it is ready to break open, especially in the breast, it generally becomes prominent in some minute point, attended with an increase of the peculiar kind of burning shooting pain, felt before at intervals in a less degree, and deeper in the body of the gland. In the prominent part of the tumour, in this state, a corroding ichor sometimes transudes through the skin, soon forming an ulcer; at other times a considerable quantity of a thin lymphatic fluid, tinged with blood from eroded vessels, is found in it. Ulcers of the cancerous nature discharge a thin fetid acrid sanies, which corrodes the parts, having thick dark-coloured retorted lips; and fungous excrecences frequently rise from these ulcers, notwithstanding the corrosiveness of the discharge. In this state they are often attended with excruciating, pungent, lancinating, burning, pains; and sometimes with bleeding.

Though a scirrhus may truly be deemed a cancer as soon as pain is perceived in it, yet every painful tumour is not a cancer; nor is it always easy to say whether a cancer is the disorder or not; irregular hard lumps may be perceived in the breast; but on examining the other breast, where no uneasiness is perceived, the same kind of tumours are sometimes found, which renders the diagnosis uncertain. Yet, in every case after the cessation of catamenia, hard unequal tumours in the breast are suspicious; nor, though without pain, are they to be supposed indolent or innoxious. Barren women, old maids, and those who mismentruate, are chiefly the subjects of cancer.

The nature of cancer is unknown. It has long been disputed, whether it was a *general* disease, a portion of the fluids determined by different causes to the affected part, or whether any accident to the organ diseased altered its former habits, so as to produce a poisonous corrosive fluid instead of the usual salutary one. We regard it as *local*; and in this opinion many of the best practitioners of the present day, among whom are Mr. Abernethy and Dr. Baillie, concur. All its symptoms impress the notion that it is a local inflammation, as far as regards the vascular system, in which the fecerents, from hereditary predisposition (which we cannot admit to exist in the blood), or from other at present unknown causes, lose their natural functions, and acquire a faculty of secreting a new and peculiar poison. This action of the fecerents is so excessive, that no known agents are capable of controlling it. The arguments adduced in favour of the general origin of the disease are these; that it is hereditary, and often met with in the same family. This can be no argument in favor of it, were it not presumed that

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hereditary

hereditary predisposition consists in a peculiar crasis of the blood. But this is so far from proved, that the opinion that the state of the nervous system constitutes predisposition has the most supporters. Thus it is said by Dr. Parr (see his article CANCER), that in six cases in which he found cancer heal, the same disease broke out in other parts; or apoplexy, enteritis, &c. supervened. This proves nothing; or, if any thing, rather against the proposition of the cachectic origin of the malady. For, as to the occurrence of cancer in another part when an old cancer is healed, does this prove the blood diseased? does not the same thing follow the healing of simple ulcers, and the reduction of common phlegmon? yet no one will refer these maladies to diseased blood. And again; how does it happen that apoplexy and enteritis follow the cure of cancer? according to this mode of argument, cancer of the brain or bowels should ensue!

At present no remedy for cancer is known; nor has any plan of treatment been laid down for its early stages which should warrant us in neglecting to urge, with all the eloquence we are masters of, the extirpation of the diseased part. Previous to amputation of the breast, however, much care will be requisite to regulate the digestive organs, the state of fulness of the sanguineous system, and, in women, above all, that of the catamenial flux. Dr. Good makes two varieties of this species.

α. C. pullulans: granulating occasionally, and giving delusive hopes of a cure; pains passable.

β. C. spongiosus, (Fungus hæmatodes, Wardrop :) with fungous and bleeding excrescences; heat and pain violent.

The latter disease was first described by Mr. Hey, in his Practical Observations in Surgery. "It is a bloody tumour, which forms in every part of the body: painful when seated in the muscles; but producing little inconvenience when in the cellular substance. It distends the integuments; but does not, like an abscess, render them thinner. When pressed with the hands, one part will give the sensation of a deep-seated fluid; in another the tumour is hard and uneven. When the integuments burst, the appearances are sometimes those of an excoriation only; sometimes a dark bloody mass protrudes through the aperture. Where the fungus comes into contact with the muscles, they lose their natural redness and their fibrous appearance, becoming brown, and like the adipose membrane. When the fungus appears through the skin, it bleeds copiously, and the hemorrhage is frequently repeated till the patient sinks; neither the hydrargyris nitratus ruber, the hydrargyris muriatus, antimonium muriatum, or undiluted vitriolic acid, can repress its growth. Amputation is the only remedy; and if the tumour has begun at the lower part of a limb, and the slightest portion is left at the upper, the disease returns. It appears to be an organised, and has been fancifully conjectured to be a living, parasitic animal, nourished by the vital fluid of the patient, and capable of absorbing from the subjacent vessels what is effused from its own."

Genus VIII. *Lues*, [from λυω, to dissolve, or corrupt.] The Venereal disease. Generic characters—Ulcers on the genitals, inguinal buboes, or both, after impure coition; succeeded by ulcers in the throat, copper-coloured spots on the skin, bone-pains, and nodes. It is now considered as divided into two species.

1. *Lues siphilis*, the common siphilis, or pox: ulcers on the genitals circular, ungranulating, thickened at the edge; those of the throat deep and ragged; symptoms uniform in their progress; yielding to a course of mercury, not known to yield spontaneously.

2. *Lues siphilodes*, pseudo-siphilis, siccens, or siccens: ulcers undetermined in their character; symptoms irregular in their appearance; usually yielding spontaneously; variously affected by a course of mercury.

This is perhaps only a variety of the preceding; and many other varieties might be noted, but they have not hitherto been sufficiently defined for classification; for

which reason, and because a full account of the various conflicting opinions upon the nature and various forms of this disease would increase this article to an enormous size, we must (having given the early and popular history under *LUES*, vol. xiii.) refer for farther particulars to the article *SIPHILIS*.

Genus IX. *Elephantiasis*, [so denominated by the Greek physicians, because the skin of persons affected with this disease resembles that of the elephant in thickness, ruggedness, insensibility, and dark hue.] Elephant-skin. Generic characters—"Skin thick, livid, rugose, tuberculate; insensible to feeling; eyes fierce and staring; perspiration highly offensive;" testicles wasted. See the article *LEPROSY*, in this work. There are three distinct species.

1. *Elephantiasis Arabica*, the black leprosy. (This is the *Elephantiasis of Aretæus, Sauvages, and Cullen*.) Tubercles chiefly on the face and joints; fall of the hair except from the scalp; voice hoarse and nasal; disorder contagious, and hereditary.

2. *Elephantiasis Italica*, so called by Dr. Good, because "for a knowledge of it we are almost exclusively indebted to Italian physicians, by whom it is called *Pellagra*, *skin-affection from pellis* and *aypa*; a barbarous term, as compounded of two different languages." It is otherwise called *Mal del Sole*, as if brought on by the heat of the sun. In this species, the tubercles are chiefly on the body and limbs; sometimes desquamating: great tension of the skin; vertigo; burning lancinating pain in the head; melancholy; at first remitting, afterwards fixed, terminating in alienation of mind: hereditary.

3. *Elephantiasis Asturienfis*: (*Mal de la Rosa, Spanisb. Lepra Asturienfis, Sauvages*.) Tubercles chiefly on the hands and feet; crustaceous, desquamating; continual tremor of the head and upper part of the trunk; baldness of the scalp as well as of other parts: gloom and terror of mind.

Genus X. *Bucnemia*. [from βου, an augmentive particle, and νημη, the leg.] Tumid leg. Generic characters—Leg enormously tumid and misshapen; skin thickened, livid, rugose; often scaly; scrotum, arms, or other parts, sometimes participating in the affection. Only one species, called

Bucnemia Indica, or Barbadoes-leg: bones and muscles of the affected limb sound; its motion little impeded by its weight.

This disease, says Dr. Good, "is, in truth, the *dal fil*, or elephant-leg of the Arabians, the Barbadoes-leg of modern writers, and for which no proper technical name has hitherto been offered. Though frequently called *elephantiasis*, from a misunderstanding of the secondary meaning of two unequivocal terms in two different languages, it is without the essential character of tubercular eruptions; while unlike the *Elephantiasis*, which extends over the whole body, it is always limited, and often confined to a single limb. It makes, however, an approach to *Elephantiasis*, and ought therefore to range near it, but it cannot be included in the same genus. It is very generally known both in the East and West Indies, in Arabia, and along the whole range of the Polynesian Isles; in which last it is denominated *yava-skin*; as being supposed to originate from drinking the heating beverage called *yava*; and, like the gout among ourselves, is regarded in a sort of honourable light. Instances of it are frequently to be met with in our own country; and, in a case that occurred to the author about a twelve-month ago, the patient, from an attempt to repel it, was suddenly attacked with a fit of gout in the stomach, which destroyed him in three days. Here, however, gout was a constitutional disease."

Genus XI. *Catacausis*, [Gr. burning.] General combustibility of the body. No generic characters are given, and only one species noted by Dr. Good, which is

Catacausis

Catacausis ebriosa: the combustibility occasioned by a long and immoderate use of spirituous liquors; and producing combustion spontaneously. For instances, see Phil. Trans. vol. xliii. and lxiv. Journal de Physique, l'an viii. Le Cat's Memoires; and the article BURNING in this work, vol. iii. p. 533. Since that article was printed, we have met with some cases more recent and more extraordinary than any there related.

In the year 1811, John Heinrich Kopp, M.D. professor of chemistry at Hanau, published at Frankfort a little treatise with the laudable view of exciting attention to spontaneous combustions of the human body; and especially as being necessarily subject to juridical investigation. Seventeen authenticated cases of this kind of combustion are related. Sixteen of these occurred to females, and the seventeenth to a man. This last has the peculiarity of the person surviving the accident three days, and of his being able to give some account of the circumstances and sensations by which it was accompanied. The singularity of this case induces us to give a translation of it; but we regret that it did not come under the immediate observation of Dr. Kopp; it is cited by him from a Florentine journal, in which it was inserted by Joseph Battaglia, a surgeon at Porte Bafo, who attended the patient. "Don G. Maria Bertholi, a priest, who lived on Mount Volere, in the neighbourhood of Fivizzani, went on business to a fair at Filetto. After having walked about the whole day, he went, toward evening, to Fenile, and put up at a relation's. Immediately after his arrival, he retired into his bed-room, and desired to have a handkerchief placed on his back, under his shirt. In a few minutes after this, being left by himself, a singular noise, mingled with cries, was heard from his bed-room. The people of the house rushed in, and found the priest stretched on the floor, surrounded by a small lambent flame, which retired as the persons approached, and at length entirely vanished. He was immediately put to bed, and the next morning (says Battaglia) I visited him. On a careful examination, the integuments on the right arm were found loosened from the muscles, and hanging down. Between the shoulders and thighs the integuments were equally injured. An incipient mortification appeared on that part of the right hand which had been most injured. On the second day, this part was in a complete state of gangrene. On the third day, the mortification had extended to all the injured parts. The patient now had excessive thirst and fever, violent convulsions, putrid evacuations from the bowels, constant vomiting, and delirium. On the fourth day, after lying two hours in a state of torpid sleep, he expired. At my last visit, during this course, I (Battaglia) saw with astonishment that the putrescence had already made rapid advances; the body of the patient emitted a most insupportable stench; worms were seen crawling from him; and the nails fell from his fingers. To the question how this accident had happened, the patient answered, that he first felt a blow, as with a club, on his right arm; and had observed, at the same time, a spark hanging to his shirt; and that the latter had in a moment been converted into ashes. The handkerchief, which had been placed on the bare skin of the shoulders, was found entire, and not even scorched. The drawers he had on were also left untouched, but the night-cap was quite consumed, though not a hair of the head was burned. That this diffused fire had consumed the skin, the shirt, and the whole night-cap, without touching the hair, is a fact I (Battaglia) can fully warrant. The night, on which this phenomenon happened, was calm, and the air clear. Not the least empyreumatic smell, nor the least trace of fire or smoke, was perceived in the room. The lamp, previously filled with oil, was dry, and its cotton incinerated. No external cause can, with probability, be assigned for this deplorable accident: if Maffei had still been alive, he would have availed himself of it as a plain proof that a lightning proceeds from within and destroys us; as noticed in the

article BURNING, quoted above. This is the only instance upon record of the calamity having happened to a man.

The last case we shall mention is one in which two persons were involved in destruction at the same time. It was read to the Medical Society at Paris, by Dr. Charpentier, physician to the royal forces of the marine, at Guerigny, near Nevers. "On the 12th of January, 1820, at ten o'clock in the evening, several neighbours of Mrs. P. of Nevers, perceived a peculiar odour, which they thought similar to that of broiled animal matter and burning wool, only more disagreeable and nauseous. They saw neither smoke nor vapour issue from any of the adjacent houses; and at last, agreeing among themselves that this odour was produced by the burning of the remains of an old Carmelite nun, who had died in the neighbourhood that day, they retired to bed without making any further inquiries. On the 13th, in the morning, a woman, living near the place, who had a second key to the door of the house, because she was in the habit of going there daily to assist the servant in attending on her mistress, opened the door to go and perform her ordinary duties. On entering the room, a dense vapour issued out, accompanied with an insupportable stench, that almost suffocated her. She retreated from the house, crying out in the most violent manner for help. The neighbours came about her; and, after waiting a few moments to let the vapour escape, they proceeded to examine the state of the room, they found neither Mrs. P. nor her servant. At first they saw no appearance of dead bodies, but they immediately recognized that Mrs. P.'s bed was entirely burned. Its different parts, however, preserved their form; but, on the slightest touch, it all sunk away, and the bedstead, mattress, feather-bed, sheets, blankets, and woollen curtains, were reduced to a cinder. Before they fired these cinders they examined the fire-place, in which they found no wood, nor any charcoal, in combustion: the fire had not been covered, and it had probably gone out for want of wood. A candlestick stood in the fire-place, and another, on the ground, in the middle of the room; there was no candle in either of them.

"On proceeding to examine the ashes, or remains of the combustion, there was found, in front of the spot which had been occupied by the bed, the extremity of a leg covered by a stocking, with a shoe on the foot, and which was recognized to be part of the right leg of the servant. It was the only portion of the body of this woman that had not been reduced to ashes. The cranium of the mistress, devoid of the scalp, which had been burned, was found in a situation corresponding with that in which the head would be as the woman lay in bed. This was the only portion of her body that had not been utterly destroyed by combustion, excepting a small fragment of the neck, or rather the skin of the neck, that had been enveloped in a red kerchief, and of which there were yet some remains immediately attached to the preserved portion of the neck.

"Although the room had no ceiling, the beams and rafters, which were very near to the top of the bed were not burned; but they were black, and felt very hot. All the things about the room, especially such as were close to the bed, were extremely humid; which was owing, without doubt, to condensation of the dense vapours with which the room was filled on being first entered. A wooden clock, hung up against the wall beside the bed, fell into ashes on the first movement.

"There were no other persons in the house but these two women. The mistress was ninety years old, the servant sixty-six; they were both of a weak constitution, thin and meagre; their food was bad, although the mistress had an income of 6000 francs. She, for some time past, had drunk eau de Cologne to great excess; and had eaten hardly any thing since this habitual abuse of spirits. The servant ate but little; she now and then took

took a little brandy; but her nourishment consisted chiefly in good old wine, hot and well sugared. She often took this in sufficient quantities to make her tipsy. It is believed that the excessive cold of the night (14° Fahrenheit) had led her to drink to excess."

Genus XII. *Porphyra*, [Gr. purple, or livid.] Scurvy. Generic characters—Livid spots on the skin from extravasated blood; languor, and loss of muscular strength; pains in the limbs.

The term *scurvy* has been most erroneously and absurdly used in popular language; having been applied, in fact, to all diseases of the skin, of a slow and chronic nature, however various in their essential character, and possessing nothing in common with the true scurvy. The skin, in scurvy, is not the seat of the disease, but is only deranged, like other organs of the body, in the progress of the malady; and that derangement is totally different from the inflammatory, pimply, pustular, or scaly, conditions of the skin, which occur in leprosy, tetters, and other cutaneous disorders, usually misnamed *scorbutic*. This mistake requires correction, not merely as a matter of nomenclature, but because a great practical error results from it; namely, the administration of antiscorbutic remedies in these cutaneous disorders, which cannot be cured, and are often aggravated, by them. The late Dr. Willan conferred a benefit on the profession, by his definite discrimination of these last-mentioned disorders.

The scurvy, properly so called, was first accurately described, and received its name, in modern times; and it is the subject of dispute, as in the case of some other diseases, whether it was known to the ancient physicians, or is a malady of more recent origin. The first specific accounts of the disease appeared in the early part of the sixteenth century, when the name of the malady seems to have been familiar among the vulgar: but the symptoms were noticed by the early voyagers in the preceding century; for considerably more than half the crew who accompanied Vasco de Gama in his voyage round the Cape of Good Hope, in the year 1497, were destroyed by this disease. Olaus Magnus, in his History of the Northern Nations, published in 1555, has described it at considerable length, and states that it was known to the inhabitants of Saxony by the name of *schorluk*, or *scorbuc*; whence the Latin term *scorbutus*, and our appellation *scurvy*. The term signified "sore-mouth; and was probably applied to the disease in consequence of the spongy ulcerations of the gums, with hæmorrhages, and loosening of the teeth, which are among the more severe symptoms of the complaint. Dr. Lind, however, suggests, with still more probability, that the name was derived from a Slavonic word, *scorb*, signifying "disease;" the scurvy being endemic in the northern countries of Europe, from whence we borrowed the appellation.

Most of the continental writers have maintained, that although the ancients have not described the symptoms of scurvy, as a single distinct disease, they have, however, mentioned several concurring symptoms, which can scarcely be supposed to belong to any other malady; while Drs. Freind, Lind, Trotter, and some other authors of this country, contend, that the Greeks, Romans, and Arabians, residing in southern climates, and unpractised in long voyages, probably never witnessed the scurvy, and thence have no where accurately described it. The rarity of the disease, under such circumstances, will probably account for the imperfect descriptions which they have left: but sieges and seasons of great dearth were not uncommon in those times, and gave rise at least to the *ignis facies*, which appears to have been nearly allied to scurvy; and the following observations relate to no other known disease. Hippocrates, when describing the diseases of the spleen, mentions some symptoms which accompany the enlargement of that organ: "The colour of the body," he says, "is changed, and becomes black and pallid, like the rind of a pomegranate; the breath is fe-

tid, and the gums also emit a bad smell, and fall away from the teeth; ulcerations break out in the legs, resembling *epinyctides*; the limbs are emaciated, and the bowels do not discharge their contents. (Lib. de Internis Affect.) And again, in his second book of Prognostics, Hippocrates observes, "In those who have tumid spleens, the gums are diseased, and the mouth emits a fetid odour; but those whose spleens are enlarged without any consequent hæmorrhages, such persons are attacked with ill-conditioned ulcers in the legs, and black scars." Here we have an additional symptom of scurvy, viz. the hæmorrhages, which were omitted in the former description. Those, however, who expect to find only the utmost accuracy in the works of Hippocrates, will perhaps be surprised to find that he has again described, still more distinctly, the symptoms of scurvy under another appellation. For in the same book (respecting Internal Diseases) in which he has noticed the enlarged spleens, he mentions the symptoms of the *ileus hæmatites* (αἱματος αἱματίτης), or "bloody iliac disease," in nearly the same terms: "This disease begins in the autumn, and exhibits the following symptoms. The mouth and teeth emit a fetid smell, and the gums separate from the latter, and blood flows from the nose; sometimes also ulcers break out in the legs, and, while some of these heal, others break out afresh; and the skin about them is of a black colour, thin, and tender." This may be deemed a good brief description of scurvy; and, if the commentators are right in their correction, the concluding symptom is equally characteristic: "the patient is indisposed to walk, or to use any exertion." The passage, as it stands in Hippocrates, however, asserts the affirmative, that the patient is disposed to exertion; a circumstance so inconsistent with ulcerations of the legs, hæmorrhages, and the other symptoms, that the commentators agree that the negative particle *α* must have been omitted. Van Swieten remarks, that the epithet of "thin or tender skinned," λεπτοδερμοι, which Hippocrates applies to those patients, is particularly characteristic of the scorbutic state; since we observe in the scurvy, that the slightest injuries break into the skin, and leave stubborn ulcerations in it; and this more remarkably happens in the legs, where only scratching them with the finger-nails will often raise an excoriation, that is followed by an ulcer of long continuance." (Comment. in Boerh. Aph. 1148.) Celsus, when treating of the affections of the spleen, mentions this indisposition of ulcers to heal: "Ulcera aut omnino non sanescunt, aut certe cicatricem vix recipiunt." And we may add, that the opinions of the commentators, respecting the sentence above mentioned, is confirmed by the statement of Celsus, who distinctly asserts, that exertion is painful and difficult.

A disease is also mentioned by Strabo and Pliny, as occurring in the Roman armies in particular situations, which can only be referred to scurvy. In this disease, which Pliny ascribed to drinking the water of a certain well, when it occurred in the army of Germanicus while encamped near the Rhine, an affection of the gums, with a falling-out of the teeth, is said to have been combined with a loss of muscular power in the lower extremities; the former affection being called *stomacace*, (quasi στοματικής κακίας, soreness of mouth,) and the latter *scletyrbæ*. (Nat. Hist. lib. xxv. cap. 3.) Similar affections, to which the same appellations are given by Strabo, are said to have prevailed in the army of Ælius Gallus, when in Arabia. (Geograph. lib. xvi.) Some authors, however, have denied that this *scletyrbæ* could be a scorbutic symptom; because Galen has stated *scletyrbæ* to be a kind of paralysis, in which the patient is unable to walk straight: but such a term might be sufficiently appropriate to that rigidity of the joints which often occurs in scurvy.

On the whole, therefore, we are disposed to believe, with the early writers upon this subject, that the *scurvy* was known to the Greek, Roman, and Arabian, physicians; although, from its comparative rarity in southern climates,

climates, it did not occur so often or so extensively as to claim their attention very strongly. In our present state of knowledge, it is divided into three very distinct species.

1. *Porphyra simplex*, petechial scurvy: spots numerous, but small and flea-bite shaped; chiefly on the breast, arms, abdomen, and legs; paleness of visage. There are two varieties.

a. *P. pulicosa*, (*Purpura simplex*, Willan and Bateman.) In this variety, which is exhibited on the annexed Plate V. fig. 1. there is an appearance of petechiæ, or extravasations under the cuticle, without much disorder of the constitution, except languor, and loss of the muscular strength, with a pale or fallow complexion, and often with pain in the limbs. The petechiæ are most numerous on the breast, and on the inside of the arms and legs; and are of various sizes, from the most minute point to that of a flea-bite, and commonly circular. They may be distinguished from recent flea-bites, partly by their more livid or purple colour, and partly because, in the latter, there is a distinct central puncture, the redness around which disappears on pressure. There is no itching, or other sensation attending the petechiæ.

β. *P. urticans* (see the same Plate, fig. 2.) is distinguished by this peculiarity, that it commences in the form of rounded and reddish elevations of the cuticle, resembling wheals, but which are not accompanied, like the wheals of urticaria, by any sensation of tingling or itching. These little tumours gradually dilate, but, within one or two days, they subside to the level of the surrounding cuticle, and at the same time their hue becomes darker, and at length livid. As these spots are not permanent, but appear in succession in different places, they are commonly seen of different hues; the fresh and elevated ones being of a brighter red, while the level spots exhibit different degrees of lividity, and become brown as they disappear. They are most common on the legs, where they are frequently mixed with petechiæ; but they sometimes appear also on the arms, thighs, breast, &c. The duration of the complaint is various, from three to five weeks. It usually occurs in summer and autumn; and attacks those who are liable to fatigue, and live on poor diet; or, on the contrary, delicate young women, who live luxuriously, and take little exercise. Some œdema of the extremities usually accompanies it, and it is occasionally preceded by a stiffness and weight of the limbs.

The cure of the above-mentioned varieties is often difficult. Viewing the diseases as arising from dyspepsia, we should direct an alteration to be made in the diet of the patient, and the bowels to be kept regular. Indeed active purging has been recommended by the best authorities. The state of the skin, as far as regards its itching or other unpleasant sensation, will also require palliative measures, as the warm bath, &c. The debility of the system may be in some measure obviated (when the diet and bowels are regulated) by mineral acids and bark, or by gentian.

2. *Porphyra hæmorrhagica*, land-scurvy: spots circular, of different sizes; often in stripes or patches, irregularly scattered over the thighs, arms, and trunk; occasional hæmorrhage from the mouth, nostrils, or viscera; great debility, and depression of spirits. See the Plate, fig. 3.

We often see persons in whom the very slightest bruises or impressions turn black. This is most generally the case in old persons; and is indeed commonly observed in an inverse ratio to the vigour of the muscular structure. It is evidently the result of want of contractile powers in the capillary vessels, which consequently give way, and allow extravasation; or in which, from the same cause, the blood stagnates. An extreme susceptibility to this lividity is seen in the patients of *P. hæmorrhagica*, except in cases comparatively sudden in their accession, and attended from the first with high inflammatory symptoms.

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This species, like the former, is also remarkable for the appearance of petechiæ; but these, as Dr. Bateman says, are "often of a larger size, and are interspersed with vibices and ecchymoses, or livid stripes and patches, resembling the marks left by the strokes of a whip, or by violent bruises. They commonly appear first on the legs, and, at uncertain periods afterwards, on the thighs, arms, and trunk of the body; the hands being more rarely spotted with them, and the face generally free. They are usually of a bright red colour when they first appear, but soon become purple or livid; and, when about to disappear, they change to a brown or yellowish hue; so that, as new eruptions arise, and the absorption of the old ones slowly proceeds, this variety of colour is commonly seen in the different spots at the same time. The cuticle over them appears smooth and shining, but is not sensibly elevated: in a few cases, however, the cuticle has been seen raised into a sort of vesicles, containing black blood. This more frequently happens in the spots which appear on the tongue, gums, palate, and inside of the cheeks and lips, where the cuticle is extremely thin, and breaks from the slightest force, discharging the effused blood. The gentlest pressure on the skin, even such as is applied in feeling the pulse, will often produce a purple blotch, like that which is left after a severe bruise.

"The same state of the habit which gives rise to these effusions under the cuticle, produces likewise copious discharges of blood, especially from the internal parts, which are defended by more delicate coverings. These hæmorrhages are often very profuse, and not easily restrained, and therefore sometimes prove suddenly fatal. But in other cases they are less copious; sometimes returning every day at stated periods, and sometimes less frequently and at irregular intervals; and sometimes there is a slow and almost incessant oozing of blood. The bleeding occurs from the gums, nostrils, throat, inside of the cheeks, tongue, and lips, and sometimes from the lining membrane of the eyelids, the urethra, and the external ear; and also from the internal cavities of the lungs, stomach, bowels, uterus, kidneys, and bladder. There is the utmost variety, however, in different instances, as to the period of the disease in which the hæmorrhages commence and cease, and as to the proportion which they bear to the cutaneous efflorescence.

"This singular disease is often preceded for some weeks by great lassitude, faintness, and pains in the limbs, which render the patient incapable of any exertion; but, not unfrequently, it appears suddenly, in the midst of apparent good health. It is always accompanied with extreme debility and depression of spirits: the pulse is commonly feeble, and sometimes quickened; and heat, flushing, perspiration, and other symptoms of slight febrile irritation, recurring like the paroxysms of hectic, occasionally attend. In some patients, deep-seated pains have been felt about the præcordia, and in the chest, loins, or abdomen; and in others a considerable cough has accompanied the complaint, or a tumour and tension of the epigastrium and hypochondria, with tenderness on pressure, and a constipated or irregular state of bowels. But in many cases, no febrile appearances have been noticed; and the functions of the intestines are often natural. In a few instances frequent syncope has occurred. When the disease has continued for some time, the patient becomes fallow, or of a dirty complexion, and much emaciated; and some degree of œdema appears in the lower extremities, which afterwards extends to other parts. The disease is extremely uncertain in its duration: in some instances it has terminated in a few days; while in others it has continued not only for many months, but even for years."

Though the indications for the treatment of this disease are perhaps as clear as any in medicine, we are usually disappointed in our expectations of cure. The first thing to be done is of course to diminish the quantity of the circulating fluid. This practice is obviously cor-

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rect: it immediately subtracts a portion of the irritant which keeps up the disease of the vascular system. The taking of blood, however, seems only useful in reducing the inflammatory action to which its morbid quality has given rise. The amelioration of the *quality* of the blood is to be attempted by strict attention to the aliment from which the chyle is formed, and the state of the organs which assimilate it. It would take much time to expatiate here upon the peculiar regimen which would be necessary for particular patients. It is clear enough that no one plan of diet will cure the disease. If the patient has lived long on vegetables, animal food would of course be allowed in moderate quantities; if the action of the stomach seemed particularly debilitated, it might be proper to have the food so prepared by culinary processes as to excite and strengthen the assimilating function; and so on of other states.

Since the secretory system acts as an emunctory to the blood, its greater excitation should be enforced; always taking care, however, that the excitation be not so great as to direct the diseased action to the excited structure. Thus the bowels and kidneys should be excited, but only by the mildest purgatives and diuretics.

In restraining the local hemorrhage, the tinctura ferri muriatis, the sulphate of zinc, and the sulphuric acid, are the most efficacious substances that we know of. They may be used sometimes in a very strong form. Dr. Struve mentions a case in which he applied concentrated sulphuric by means of a pencil to bleeding petechiæ, and the hemorrhage ceased.

3. *Porphyra nautica*, sea-scurvy: spots of different hues intermixed with livid, principally at the roots of the hair; teeth loose; gums spongy and bleeding; breath fetid; debility universal and extreme.

The very frequent connexion between long-continued use of solid meat and scurvy, has led to the supposition, that eating of much salt is the cause of scurvy; but this idea is now considered erroneous. The use of salt seems to produce scurvy only in consequence of its extreme quantity irritating and impairing the digestive organs; and moreover the loss of nutritious juices which salted meats undergo, may operate to retard assimilation: at all events, scurvy may be brought on by the use of substances in which salt forms a very small part; and it is most evidently increased or diminished in proportion to the degree of spirits or dependence which the mind of the patient undergoes. See a very remarkable instance of the state of mind in this disease, vol. xi. p. 500.

These two last and most important species were for a long period confounded together, considered to be diseases of debility, and consequently to be cured only by stimulating means. We are indebted to Dr. Parry for first showing the error of this idea. He first pointed out the important fact, that plethora was the state of body which attended the *Purpura hæmorrhagica*, or land-scurvy; and that the dreadful phenomena of this malady arose from morbid action of the blood-vessels; though it is allowed that this morbid action must result from morbidity of the blood itself in the first instance. The only similarity which is traceable between the land and sea scurvy is that in each the primary cause is disorder of the assimilating function. In most cases this arises from bad food, whether it be improper in quality, deficient or otherwise in quantity. The assimilating function is subject likewise to be influenced by causes foreign to the aliment itself. Thus we find salted meat produces the sea-scurvy, excess and irregularity of eating the land-scurvy and its peculiar varieties.

In the land-scurvy, the gastric or intestinal disorder exerts itself most especially on the capillary system, and that in a slow and gradual manner; while the condition of plethora is extreme, and worthy of particular attention in the cure. On the other hand, in the sea-scurvy, the muscular substance, in consequence of the deprivation of the fibrine of the blood, is first affected, and the

contractility of the capillary system secondarily; nor is plethora generally very apparent, nor the inflammation so violent as to require depletory measures. We have thought proper to introduce these cursory remarks for the sake of showing the justness of the present arrangement.

The following remarks apply, more or less, to the symptoms and treatment of all the species. The first indication of the approach of scurvy is an aversion to any sort of muscular exertion; a laziness, or strong inclination to sit still or lie in bed; which is accompanied with a spontaneous lassitude, or a sense of heaviness and pain throughout the body, and especially in the muscles of the limbs and loins, like that which arises from great fatigue, which soon becomes actual feebleness, so that the least exercise, especially in ascending or descending a declivity, induces fatigue and shortness of breath. With this aversion to motion and diminished power of exertion, there is also very early a change of the complexion, which becomes pale and bloated, or fallow, especially about the lips and corners of the eyes, where there is a greenish tinge. These two symptoms, indeed, the disinclination to exertion, and the fallow countenance, often portend the approach of scurvy, while the patient eats and drinks heartily, and seems otherwise in good health: and the speedy lassitude and difficulty of breathing upon motion, are among the most constant concomitants of the distemper throughout its course.

As the disease advances, other symptoms appear. Among these the *stomacacæ*, or morbid condition of the mouth, is one of the first that presents itself. The gums become hot and painful, and soon swell, growing soft and spongy, and of a livid hue, and afterwards extremely putrid and fungous, constituting one of the most distinguishing features of the disease. This occasions great fetor of the breath, and the loosening of the teeth, which become moveable in their sockets, and may be taken out without force or pain, and even fall out spontaneously. Hemorrhages also take place from the slightest pressure on the gums, or even without any apparent cause, as well as from the nose; and ultimately from other parts of the body, where the cuticle is delicate, or the surface broken, in consequence of the apparent loss of cohesion in the solids, and especially in the vascular system.

From this cause the *skin* also exhibits some of the most striking characteristics of scurvy. It becomes dry, and spotted over with discolourations of a red, bluish, purple, and black, hue, of various sizes, from the *petechiæ*, or spots like flea-bites, to the most extensive *ecchymoses*, of the size of a hand-breadth, or larger, such as are produced by the severest bruises. These appear chiefly on the legs and thighs; but often also on the arms, breast, and trunk of the body; and sometimes, though more rarely, on the head and face. They consist, in fact, of effusions of blood under the cuticle, from the rupture of the small vessels. As the disease advances, this laxity and loss of cohesion in all the solids becomes still more manifest, by the frequent and profuse bleedings which are liable to occur from different parts of the body; especially from the nose, gums, stomach, bowels, lungs, kidneys, and bladder, and from the ulcers and fungous excrescences which arise on the surface. In some patients, the hemorrhages from the bowels are accompanied by severe pains and diarrhœa; while others, without either purging or gripes, discharge great quantities of pure blood by the anus. Other marks of laxity appear in the cedematous swelling which takes place in the legs, beginning first about the feet and ankles; which, however, is more painful than common anasarca, and retains longer the impression of the finger. They appear remarkably also, in the great facility with which the slightest bruises and wounds degenerate into foul fungous ulcers, as well as in the spontaneous appearance of such ulcers, and the breaking-out of long-healed sores, and even the disunion of old fractures in bones. "Whatever former complaints,"

plaints," Dr. Lind observes, "the patient has had, especially bruises, wounds, &c. or whatever present disorders he labours under, upon being afflicted with the scurvy, his old complaints are renewed, and his present rendered worse." Indeed the scurvy often first shows itself by the changes in diseased parts. "Thus, when a person has had a preceding fever, or a tedious sickness, by which he has been much exhausted, the gums for the most part are first affected, and a lassitude constantly attends; whereas, when one has been confined from exercise by having a fractured bone, or from a bruise or hurt, these weak and debilitated parts become almost always first scorbutic. As for example, if a patient labours under a strain of the ankle, the leg, by becoming swelled and painful, and soon after covered with livid spots, gives the first indication of the disease. And, as old ulcers on the legs are very frequent among seamen, in this case likewise the legs are always first affected, and these ulcers put on a scorbutic appearance, although the patient seems otherwise perfectly healthy, and preserves a fresh good colour in his face." The effect of the disease upon former maladies is strongly depicted by the elegant writer of Lord Anson's Voyage. "But a most extraordinary circumstance," says that gentleman, "and what would be scarcely credible upon any single evidence, is, that the scars of wounds which had been for many years healed, were forced open again by this virulent distemper. Of this there was a remarkable instance in one of the invalids on-board the Centurion, who had been wounded above fifty years before at the battle of the Boyne; for though he was cured soon after, and had continued well for a great number of years past, yet, on his being attacked by the scurvy, his wounds, in the progress of his disease, broke out afresh, and appeared as if they had never been healed. Nay, what is still more astonishing, the callus of a broken bone, which had been completely formed for a long time, was found to be hereby dissolved, and the fracture seemed as if it had never been consolidated." (Voyage round the World in 1740-4, by Lord Anson, compiled by the Rev. R. Walter, Chaplain to the Centurion, p. 102.) The ulcers, which occurred in the legs of the scorbutic patients on this occasion, are said to have been "of the worst kind, attended with rotten bones, and such a luxuriance of fungous flesh as yielded to no remedy." The edges of these scorbutic ulcers are of a livid colour, and puffed up with the fungous excrecences, which are not inaptly called by the sailors *bullock's liver*, since to this substance, when boiled, Dr. Lind says, they bear a near resemblance, both in consistence and colour. They often arise in the course of a night to a monstrous size; and, although destroyed by caustics or the knife, (in which last case, a copious bleeding commonly ensues,) are found at the next dressing as large as ever. Dr. Lind affirms, however, that "they continue in this condition a considerable time without tainting the bone." (Lind on Scurvy, pt. ii. ch. 2.) These scorbutic ulcers, which are singular and uniform in their character, are distinguished from all others by being so remarkably offensive, bloody, and fungous.

In addition to these affections of the lower extremities, (to which however they are not exclusively confined,) in the advanced stage of the scurvy, the patients most commonly lose the use of their limbs, having a contraction of the tendons in the ham, with a swelling and pain in the joint of the knee. Indeed, a stiffness in these tendons, and a weakness of the knees, appear pretty early in this disease, generally terminating in a contracted and swelled joint.

In the progress of the scurvy, the patients commonly complain of pains, which are often moving from part to part. Some complain of a general pain in their bones, which is most violent in the limbs and loins, and especially in the joints and legs; and a pain, with tightness and oppression, in the breast, is very common. The head

is seldom or never affected, unless the patient is feverish, which is unusual; for, as Dr. Lind well observes, the disease is altogether of a chronic nature, and fever may be justly reckoned among its adventitious symptoms. It is remarkable, indeed, that in the worst stages of the scurvy, with all the severe symptoms above described, with painful spreading ulcers of the surface, with contracted limbs, hemorrhages, spongy, putrid, stinking, gums, over-run with sprouting flesh, and often deeply ulcerated, with inability to make the least muscular exertion, without fainting, or perhaps dying; yet the patients, even in this stage, have a good appetite with their senses entire; and, though easily dejected and made low-spirited, yet, when in bed, they make no complaint of pain or sickness, and appear to be in tolerable health. This singular characteristic of the disease is well depicted by the reverend author before quoted. "Indeed, the effects of this disease," he says, "were in almost every instance wonderful; for many of our people, though confined to their hammocks, appeared to have no inconsiderable share of health; for they ate and drank heartily, were cheerful, and talked with much seeming vigour, and with a loud strong tone of voice; and yet on their being the least moved, though it was only from one part of the ship to the other, and that in their hammocks, they have immediately expired; and others, who have confided in their seeming strength, and have resolved to get out of their hammocks, have died before they could well reach the deck. And it was no uncommon thing for those who were able to walk the deck, and to do some kind of duty; to drop down dead in an instant, on any endeavours to act with their utmost vigour; many of our people having perished in this manner during the course of this voyage."

The principal phenomena described in the necrotomy of scorbutics, are the general extravasation of blood, and the dissolution and separation of parts naturally united. Thus the bodies of the muscles are often found swelled and hard, from the blood fixed among their fibres, so that the limbs remain bent or contracted; and the epiphyses of the bones are found separated, the cartilages of the sternum loosened from their union with the bony part of the ribs, or the ligaments of the joints are corroded and loose. The mesenteric glands are generally obstructed and enlarged, and the spleen bigger than natural, often falling to pieces as if it consisted of coagulated blood.

It is now generally understood that no medicines are of avail in the cure of scurvy unless the diet be improved; and that, if this be done, medicines are scarcely ever required. It has been found, that in the worst cases the administration of fresh vegetables has restored the sufferer to health. Among these vegetable productions, lemons hold the first rank. Indeed so universal has been the success which has attended the treatment of scurvy by the vegetable acids, that some have inferred that a want of oxygen in the blood is the proximate cause of this disease; an hypothesis however which is unsupported by facts. When lemons cannot be preserved, as in long voyages, citric acid is a very useful substitute. The scurvy, which was once so formidable in our navy as to destroy whole fleets, is now so far got under by the regulations introduced into our navy (chiefly through the exertions of Dr. Trotter), that it is scarcely more frequent than other diseases.

Genus XIII. *Exangia*, [from *εξαγγιζω*, to pour out from a vessel.] Enlargement or rupture of a blood-vessel, without external opening. There are two species.

1. *Exangia aneurisma*, aneurism: pulsating tumour of an artery. Three varieties.

a. *A. cysticum*, encysted aneurism: tumour circumscribed; formed by a dilation of the arterial coats within the sphere of the enlargement.

β. *A. diffusum*, diffused aneurism: tumour diffuse: formed by the flow of arterial blood into a subcutaneous cavity,

cavity, in consequence of a rupture of the coats of the artery.

γ. *A. varicosum*, varicose aneurism: tumour protruded: pulsating through a superincumbent and dilated vein from an injury common to both. For the treatment of these three varieties, see SURGERY.

δ. *A. cardiognus*: obtuse intumescence and constant disquiet of the præcordia; with a sense of internal weight and pulsation increased on the smallest motion. See *Carditis* of this article.

2. *Exangia varix*: soft livid tumour of a vein. See SURGERY.

Genus XIV. *Gangræna*, [from γράνω, to feed upon.] Gangrene; the death of a portion of the body, while the rest continues alive, and often in a sound state. There are four species.

1. *Gangræna sphacelus*, mortification: the dead part soft, moist, corrupt, and highly offensive. Divided into,
α. *G. inductus*, which is preceded by fever, inflammation, local violence, or other exhausting power.

β. *G. atonicus*; the result of old age or other debility.

2. *Gangræna necrosis*, dry gangrene: the dead part dry, shrivelled, hard, and dusky. Two varieties here also.

α. *G. albida*, white gangrene: retaining the natural colour of the flesh.

β. *Discolor*: the natural colour changed to livid, or a mixture of hues.

3. *Gangræna caries*: the dead part originating in, or extending to, a portion of the subjacent bone.

4. *Gangræna ustilaginea*, mildew-mortification, or ergot: gangrene dry, diffuse, divergent; commencing in the extremities without fever or intumescence, and spreading till various limbs drop off in succession: great hebetude of mind and body; often with violent spasms. See the article SURGERY.

Genus XV. *Ulcus*, [έλκος, derived by Eustathius from ελκω, traho, as though distraho, hereby producing a λυσις συνεχείας, or in the phrase of modern times, which is a literal rendering of the Greek, "solution of continuity."] Ulcer; a purulent or ichorous sore produced by the separation of a dead part. There are five species.

1. *Ulcus incarnans*: healthy, purulent, and granulating.

2. *Ulcus vitiosum*: with a vitiated surface and secretion. Three varieties.

α. *Callosum*: the edges indurated and retracted.

β. *Spongiosum*: with fungous or spongy excrescences.

γ. *Cancrosum*: with a hard, livid, lancinating, irregular, fetid, and frequently bleeding, tumour at its base.

3. *Ulcus sinuosum*: communicating with the neighbouring parts by one or more winding channels. Divided into,

α. *Recens*: the channel fresh, and yielding.

β. *Fistulosum*: channel indurated, and of longer standing. For the treatment of these three species, and their varieties, we must refer to the article SURGERY.

4. *Ulcus tuberculiforme*, lupus, or noli me tangere: with tuberculous excrescences, lobed by ragged and spreading ulcerations: chiefly about the alæ of the nostrils.

This is a very rare but formidable disease. Very little is known as to its nature or treatment. It is a slow tubercular affection, affecting the nose, lips, or other parts of the face, or trunk of the body. It commonly ends in ragged ulcerations, which gradually destroy the skin and muscular parts to a considerable depth. Sometimes the disease appears in the cheek circularly, or in the form of a sort of ring-worm, destroying the substance, and leaving a deep and deformed cicatrix: and Dr. Bateman has seen a similar circular patch of the disease, dilating itself at length to the extent of a hand-breadth or more, upon the pectoral muscle.

"By surgical means, i. e. by the knife or the caustic, a separation has sometimes been made of the morbid from

the sound parts, and the progress of the disease arrested. And in some cases, where the ulceration was very slow, and unaccompanied by much inflammation, the internal use of arsenic has been found beneficial; a circumstance, which has probably given rise to the opinion, that cancer has been cured by that mineral. In three or four less severe cases of lupous tubercles in the face, which had made no progress towards ulceration, I have seen the solution of muriate of barytes, taken internally, materially amend the complaint. Bateman, p. 299. The disease is said to have been cured in some instances (vide Med. Journal, vol. xv.) by carbonate of iron.

5. *Ulcus cariosus*, (Caries, *Sauv. Linn. Cullen, &c.*) Ulcer extending into the substance of the subjacent bone. If the ulceration extends to the medulla, it is often called "arthrocace."

CLASS IV. NEUROTICA, [from νεύρον, a nerve.]

DISEASES of the NERVOUS FUNCTION.

Order I. PHRENICA, [from φρεν, the mind.] Affecting the Intellect. Error, perversion, or debility, of one or more of the mental faculties. This order contains six genera.

Genus I. *Ecphronia*, [from εκ, out of, and φρεν, the mind.] Infancy. Generic characters—Diseased perception, with little disturbance of the judgment, occasionally shifting into diseased judgment, with little disturbance of the perception; diminished sensibility; irregular remissions. There are two very distinct species.

1. *Ecphronia melancholia*, melancholy: the discrepancy between the perception and the judgment limited to a single object, or train of ideas; for the most part with taciturnity, love of solitude, gloomy fear, or suspicion. Four varieties.

α. *M. attonita*: fixed, mute, immoveable, melancholy.

β. *M. errabunda*: roving, restless, melancholy; having a constant desire to change the abode.

γ. *M. malevolens*: morose or mischievous melancholy; occasionally terminating in suicide, or the injury of others.

δ. *M. complacens*: self-complacent and affable melancholy; occasionally rejoicing in a visionary superiority of rank, station, or endowments.

See, for examples of this last variety, Hor. Sat. iv. Ep. ii. 2. But of this modification one of the best examples that has ever been drawn, says Dr. Macon, "is that of Don Quixote, taken unquestionably from real life. This variety is connected with all the rest in the leading specific character of the discrepancy between the perception and the judgment being limited to a single object or train of ideas; but it differs from them by the intermixture of a certain degree of *eparsis*, or sentimental elevation, which destroys the common tendency to taciturnity, solitude, and gloomy apprehension."

The more common causes of the disease as a species are false views of religion; severe disappointment; longing after one's native country and friends; and continued grief.

2. *Ecphronia mania*, madness: the discrepancy between the perception and the judgment general; raving; extony; and impassioned emotion. Four varieties.

α. *M. ferox*: furious and violent madness.

β. *M. exultans*: gay and elevated madness.

γ. *M. despondens*: gloomy despondent madness. The despondent cases are more dangerous than those of hilarity.

δ. *M. demens*: chaotic madness.

We shall now proceed to give Dr. Good's arrangement of the remainder of this order; without any intention, however, of following our nosologist into an account of the nature or treatment of mental diseases. Indeed much as we respect the talents of Dr. Good, we cannot help smiling at his love of nosology when we find that musing, joy, jealousy, and even love, are styled diseases, of

of which we may say, as Ovid did long since of the last, that they are *nullis medicabilis herbis*.

Genus II. *Empathema*, [from *εν* and *παθημα*, of *πασχω*, to suffer.] Ungovernable passion. Generic characters—The judgment perverted or overpowered by the force of some predominant passion: the features of the countenance changed from their common character. Two species.

1. *Empathema entonicum*: the predominant passion accompanied with increased excitement, ardour, and activity: eye quick and daring; countenance flushed and tumid. Divided by Dr. Good into,

α. *Iracundiæ*, wrath.

β. *Sûperbiæ*, pride.

γ. *Gloriæ famis*, ambition.

δ. *Letitiæ*, joy.

ε. *Philautiæ*, self-love, or self-conceit.

ζ. *Zelotypiæ*, jealousy.

2. *Empathema atonicum*: the predominant passion accompanied with diminished excitement, anxiety, and love of solitude; eye fixed and pensive; countenance pale and furrowed. Six varieties.

α. *Desiderii*, longing: eager desire for an absent object, whether place or person: and hence equally including home-sickness, country-sickness, love-sickness.

β. *Auri famis*, avarice.

γ. *Anxietudinis*, preying care.

δ. *Mœroris*, heart-ache.

ε. *Desperationitis*, despondency.

Genus III. *Alusia*, [from *αλυσ*, *αλυσος*, *αλυσμος*, *οβerratio*. Galen occasionally employs the second. The theme is *αλυσ*, "errandâ mente afficior; inquietus oberro:" whence the Latin *allucinatio*, and *hallucinatio*.] Illusion. Generic characters—The judgment perverted or overpowered by the force of the imagination; the spirits permanently elevated or depressed; the feelings of the mind depicted in the countenance. Two species.

1. *Alusia elatio*, mental extravagance: romantic ideas of real life; ardent and exalted fancy; pleasurable feelings; frequent pulse; great activity; eye keen and lighted up: countenance confident and animated. Divided into,

α. *E. heroica*, chivalry or romantic gallantry. A generous and high-spirited flight of the imagination, but now grown obsolete, and rarely to be met with except in ancient tales and traditions.

β. *E. facetosa*, high spirits; sparkling ebullient wit, incapable of restraining itself; that often sacrifices a friend at the shrine of a jest.

γ. *E. ecstasica*, false inspiration; visionary conceits. The judgment urged to mistake energetic ideas for realities; to believe in phantasms; in an immediate communication with spirits, or in the power of working miracles. Examples may be found in all ages and in all religions. One of the most interesting is that of Saint Teresa in Butler's Lives. In our own day one of the most striking is that of Baron Swedenborg.

δ. *E. fanatica*, fanaticism.

2. *Alusia hypochondriacis*, hypochondriacism: gloomy ideas of real life; dejected spirits; anxiety; dyspepsy; languid pulse; indisposition to activity; eye oblique and scowling; countenance gloomy and sullen. Three varieties, all perhaps proceeding from *Dyspepsia*, which see.

α. *H. auralgica*, vapours: with visionary or exaggerated sense of pains, or disease; whimsical dislike of persons, places, or things; groundless apprehensions of personal danger, or poverty.

β. *H. pentæta*, spleen: with general listlessness, or disgust; irksomeness and weariness of life.

γ. *H. misanthropica*, misanthropy: with general malvolence, peevishness, and abhorrence of mankind.

Genus IV. *Aphelxia*, [from *αφελω*, to draw away.] Reverie. Generic characters—Voluntary inactivity of the whole or the greater part of the external senses to

the impressions of surrounding objects, during wakefulness. Of this disease, which, as Dr. Good justly observes, is almost, if not altogether, new to nosology, and has seldom been dipt into by physiologists, the doctor gives us three species.

1. *Aphelxia socors*, absence of mind: truant attention; wandering fancy; vacant or vacillating countenance.

2. *Aphelxia intenta*, abstraction of mind: the attention wound up, and rivetted to a particular subject; with sympathetic emotion of the muscles and features connected with its general drift.

3. *Aphelxia otiosa*, brown study, or listless musing: leisurely listlessness; free surrender of the judgment to the sportive vagaries of the fancy; quiescent muscles; idle gravity of countenance.

Genus V. *Paroniria*, [from *παρα*, and *ονειρον*, dreaming.] Depraved, disturbed, or morbid, dreaming. Generic characters—The voluntary organs connected with the passing train of ideas overpowered by the force of the imagination during dreaming, and involuntarily excited to their natural or accustomed actions, while the other organs remain asleep. Three species.

1. *Paroniria ambulans*, sleep-walking, or somnambulism: the muscles of locomotion excited into their accustomed action by the force of the imagination during dreaming.

2. *Paroniria loquens*, sleep-talking: the muscles of speech excited into their accustomed action by the force of the imagination during dreaming.

3. *Paroniria salax*, night-pollution; (*Gonorrhœa dormientum*, Cull.) The sexual organs excited into venereal action by the force of the imagination during dreaming.

The reader will observe, that the term *Paroniria salax* is restricted to night-pollution from dreaming, and does not therefore embrace that kind of night-pollution which requires the aid of medicine.

Genus VI. *Moria*, [from *μωρος*, silly, foolish.] Fatuity; defect or hebetude of the understanding. Two species, subdivided into varieties.

1. *Moria imbecilis*, imbecility: defect or hebetude partial or confined to particular faculties of the understanding. Four varieties.

α. *Stupiditas*, stupidity: dulness and indocility of the apprehension; torpitude and poverty of the imagination.

β. *Amnesia*, forgetfulness: feebleness or failure of the memory.

γ. *Credulitas*, credulity: weakness and undue pliancy of the judgment, with facility of being duped.

δ. *Inconstantia*, fickleness: instability and irresolution of the will.

2. *Moria demens*, irrationality: defect or hebetude of all the faculties of the understanding. Three varieties.

α. *Stultitia*, silliness: shallow knowledge; feeble judgment; light frivolous fancy; for the most part with good nature, sometimes with obstinacy.

β. *Lerema*, dotage: impotence of body as well as of mind from natural or premature old age; childish desires and pursuits; drawling speech or garrulous babble, composed of ideas for the most part associated by previous habit.

γ. *Anœa*, idiotism: general obliteration of the mental powers and affections; paucity or destitution of ideas; obtuse sensibility; vacant countenance; imperfect or broken articulation; with, occasionally, transient and unmeaning gusts of passion.

Order II. *ÆSTHETICA*, [from *αισθησις*, perception, *αισθανομαι*, to perceive.] Diseases affecting the Sensation. Dulness, depravation, or abolition, of one or more of the external organs of sense. This order contains five genera.

Genus I. *Paropsis*, [from *παρα*, bad, and *οψις*, sight.] Diseased vision; the sense of sight being vitiated or lost.

Under this genus, Dr. Good includes all diseases of the eye, except simple ophthalmia. We regret that we cannot in this place enter into an account of these maladies. When, however, it is considered, that the anatomical details, as to the structure, into which we must first enter, would be long, and that moreover the most compressed accounts of ocular maladies occupy a space much greater than could be introduced into this article, we are compelled to postpone the subject until we arrive at the article SURGERY. In the mean time we have much satisfaction in referring our readers to two works of the first excellence for all necessary information upon the diseases in question. We allude to the works of Mr. Travers and Dr. Vetch. Dr. Good's classification of these diseases, in which there appears no fault except that catarrh, glaucoma, &c. cannot be considered as nervous diseases, is as follows.

1. *Paropsis lucifuga*, night-sight: vision painfully acute in a strong light; but clear and pleasant in a deep shade or the dusk of the evening. Chiefly common to those who live almost constantly in dark inclosures, as mines or prisons; or who have recently had a cataract depressed or extracted; and to short-sighted persons. Found also, occasionally, as a symptom in ophthalmia, irritation of the optic nerve, and Hydrops capitis.

2. *Paropsis noctifuga*, day-sight: vision dull and confused in the dusk; but clear and powerful in broad daylight. It proceeds usually from a want of sufficient irritability in the retina; which, in consequence, is only excited to action by a strong stimulus, or powerful light; and hence does not clearly discern in the shade or towards the close of day. Hens are well known to labour under this defect; and hence they cannot see to pick up small grain in the dusk of the evening, and so employ this time in going to roost: on which account the disease is sometimes called *hen-blindness*.

3. *Paropsis longinqua*, long-sight: vision only accurate when the object is far off.

In the preceding species the hebetude seems chiefly to appertain to the *retina*: in the present species it belongs chiefly to the *iris*, which is habitually dilated, and not easily stimulated to a contractile action. For "it is well known," observes Dr. Wells, "to those who are conversant with the facts relating to human vision, that the eye in its relaxed state is fitted for distant objects, and that the seeing of near objects accurately is dependant upon muscular exertion." (Phil. Trans. 1811, art. xix.) There are three varieties,

a. *Vulgaris*: common to every period of life, and chiefly produced by habitual relaxation of the iris, mostly with somewhat too flat a cornea.

β. *Paretica*: from partial paralysis: as an absolute incontractility of the iris, by which the diameter of the pupil is rendered unchangeable, and a paresis of several other muscular powers of the eye is superinduced; while the retina continues perfectly sensible to the stimulus of light. For cases, see Phil. Trans. 1793 and 1811.

γ. *Senectutis*: from old age, in which the cornea usually grows less convex; and hebetude and relaxation become common to all the powers of the eye.

4. *Paropsis propinqua*, short-sight: vision only accurate when the object is near. Mice are supposed to have this kind of vision naturally; and hence the name that has been given to it of *myopia*, or mouse-sight.

5. *Paropsis lateralis*, skew-sight. In this species the patient can only see obliquely, in consequence of some partial obfuscation of the cornea (usually perhaps from scratches or slight scars), or of the humours through which the light is transmitted; or from a partial paralysis of the retina. This must not be confounded with *strabismus*; or squinting, which proceeds from a different cause, and is accompanied with different phenomena. In *lateral vision*, the axis of the eye affected usually coincides with that of the sound eye, though it runs somewhat obliquely to avoid the obstruction in the tunic. In

strabismus, the two axes do not coincide, and the judgment is formed from the strongest eye alone. If, however, in lateral vision, the obstruction be such as to make the optical axis of the affected eye at variance with that of the sound eye, squinting must be a necessary consequence of the disease.

6. *Paropsis illusoria*, false sight: imaginary objects floating before the sight; or real objects appearing with imaginary qualities. Dr. Good notes two varieties, and several sub-varieties.

a. *Phantasmatum*: ocular spectres, assuming various semblances; as, dark spots, the *muscæ volitantes* of various authors; net-work, sparks, dazzling, iridescence, &c. "These appearances (says Dr. Young) are sometimes, if not always, occasioned by an opacity of some of the vessels of the vitreous humour, near the retina. They are seen in a full light; and cannot, therefore, as Sauvages has justly remarked, be caused by any thing in the anterior part of the eye; and they may often be observed to change their form with the motions of the eye; which they could not do if they did not depend on some floating substance. Their apparent change of position, when we attempt to follow them with the eye, is a necessary consequence of the motion of the eye itself which contains them.

β. *Mutationis*: real objects changed in their natural qualities: hence proceed, error of form, when objects appear too large, too small, cut in half, distorted; error of motion, which consists usually in dancing, nodding, or rapid succession; and error of number, when objects are doubled, tripled, or otherwise increased or multiplied.

7. *Paropsis caligo*, opaque cornea, or web-eye: dimness or abolition of sight from opacity of the cornea, or spots upon its surface. "This is the foul fiend, Flibbertigibbet: he gives the WEB, and the pin, squints the eye, and makes the hare-lip." *Shakespeare*.

8. *Paropsis glaucoma*: dimness or abolition of sight from opacity of the humours.

9. *Paropsis cataracta*, cataract: dimness or abolition of sight from opacity of the crystalline lens. Three kinds.

a. *C. lenticularis*, lenticular: the opacity existing in the lens itself, and confined to it.

β. *C. capsularis*, capsular or membranous: the opacity confined to the capsule, or membrane of the lens.

γ. *C. complicata*, complicated: the opacity common to the lens and its capsule.

10. *Paropsis synizesis*: dimness or abolition of sight from contraction or obliteration of the pupil. Two varieties.

a. *S. simplex*, simple closure of the pupil. The pupil becomes closed or obliterated from progressive contraction, and at length coalition, of the muscular fibres of the iris; from inflammation of the surrounding membranes; or from protrusion of the iris. In all these cases it is called "simple obliteration of the pupil."

β. *S. complicata*, closure of the pupil complicated with cataract or an opaque cornea.

11. *Paropsis amaurosis*, gutta serena, or drop serena: dimness or abolition of sight, with an unalterable immovable pupil, usually black and dilated; but without any other apparent defect. Three varieties.

a. *A. atonica*; with permanent atony and dilatation of the pupil.

β. *A. spasmodica*; with permanent contraction.

γ. *A. intermittens*; with periodical cessations and returns.

12. *Paropsis staphyloma*, protuberant eye: enlargement of the ball of the eye; protuberance of the cornea; sight dim or abolished. *Staphyloma* is from *σταφυλή*, a grape, on account of the resemblance of the tumour to the pulpy and semi-transparent appearance of this fruit. Richter has the credit of having first pointed out the real nature of this disease, of which there are three varieties.

a. *St. simplex*; from increased secretion of the aqueous or other humour: pupil transparent.

β. St. purulentum: from flow of pus from an abscess in one of the membranes; pupil cloudy. By Plenck called *onyx*, when between the lamellæ of the cornea; and *hypopyum*, when in the aqueous humour.

γ. St. complicatum; complicated with a rupture of the iris, and its protrusion upon the cornea; constituting a grape-like tumour; sight abolished.

13. Paropsis strabismus, squinting: optic axes of the eyes not coinciding on an object.

The optic axis is an imaginary right line passing from the centre of the vitreous humour, lens, and globe, of the eye, to the object of vision. In perfect vision, the optic axis of the one eye is in unison with that of the other, and consequently they converge or coincide at the same point; and the object, which would otherwise appear double, as being seen by each eye, is contemplated as single. In order to this coincidence, the muscles of each eye must constantly assume the same direction, their position and configuration be precisely alike, and the sight be of an equal power and focus: a deviation from each of which postulates must necessarily produce squinting, or an inaccordant action of one eye with the other. From common and early habit we acquire an equal command over the muscles of both, and are able to give them any direction, and to fix them against any object we please: and such is the power of habit, that at length they involuntarily associate in the same action, and it is difficult for us to give to the one eye a different direction from that of the other, or, in other words, to make their optic axes diverge instead of converge. In persons born blind, no benefit can be derived from this unity of action; hence it is never attempted; and, the muscles being never subjected to discipline, the eye-balls roll at random, and wander in every direction. And hence one of the most difficult tasks to be acquired by such persons after obtaining sight, is that of keeping their eyes fixed, and giving the same bearing or convergent line to each; and hence, again, they see things double at first, and in a state of great confusion. When one eye is naturally stronger, or of a more favourable focus, or more frequently employed than the other, as among watchmakers and jewellers, the latter, from comparative neglect relapses into an undisciplined state, and less readily obeys the control of the will. Its muscles do not assume the same direction, and if they do, in the two former cases, the object appears double; and hence the neglected or weaker eye wanders and stares at one or at various objects, while the eye relied upon is fixed upon some other. And it is this divergence of the optic axes, this inaccordance of direction, or looking at different objects at the same time, that constitutes the disease called *strabismus*, or squinting. From the above-mentioned causes, we divide the species into three varieties.

α. Str. habitualis, from habit, or the custom of using one eye and neglecting the other; whereby the latter grows gradually more unsteady, and the will has no longer an equal command over both.

β. Str. atonicus, from debility of the affected eye; whence the sound eye possesses a different focus and power of vision, and is alone trusted to: in consequence of which the weak or neglected eye insensibly wanders as above.

γ. Str. organicus, differently constructed in form or position: so that the situation or figure of one eye, or of particular parts of one eye, are inaccordant with those of the other; whence, as in the preceding varieties, one eye is chiefly depended upon, and the other neglected.

14. Paropsis ectropium, eversion of the eye-lids: eversion of one or both the eye-lids; and consequent exposure of the red internal tunic.

The opposite affection, or *inversion* of one or both eye-lids, is denominated *entropium*. It is often a very troublesome complaint, from the irritation produced by the inverted eye-lashes. But it is, perhaps, in every instance a symptom or sequel of some other disorder, as a tumour

seated on the affected lid, or a contraction of its internal membrane from a cicatrix, or other cause.

Genus II. *Paracusis*, [*παράωσις* of Hippocrates, from *παρά*, bad, and *αἰσῶσις*, to hear.] Sense of hearing vitiated or lost. There are six species.

1. Paracusis acris: hearing painfully acute, and intolerant of the lowest sounds. A symptom of increased nervous excitement, as in cephalitis, epilepsy, &c. When idiopathic, i. e. when a mere nervous disease of the part, and unconnected with general plethora or general exaltation of the cerebral function, it will require the same treatment as in other local irritations; that is, the subduction of noise, opening medicine, and, in violent and distressing cases, the belladonna may be used.

2. Paracusis obtusa: hearing dull and confused, and demanding a clear and modulated articulation. Hardness of hearing is divided into,

α. Organica; from organic defect.

β. Atonica, or nervous deafness; from local debility. This, which arises from deficient energy of the auditory nerves, is much relieved by electricity.

γ. A meatu obstructo; from obstruction in the auditory tube or passage; as by mucus, wax, sordes, an insect, or any other extrinsic body. When any substance is lodged in the part, it must be extracted by syringing; and in some cases, as where the Eustachian tube was closed in consequence of inflammation, the tympanum has been successfully punctured by Sir A. Cooper. For the mode of performing this operation, see the article SURGERY.

3. Paracusis perversa, perverse hearing: the ear only sensible to articulate sounds when excited by other and louder sounds intermixed with them.

Of this extraordinary disease, Sauvages has collected various examples from unquestionable authorities. The first case is that of a woman who could never understand what was spoken to her unless a drum were beating close to her at the same time; and who, on this account, kept a drum always in the house, which was constantly played upon while she was conversing with her husband. Another case is that of a bell-ringer, who could never distinguish speech except while the bells were ringing. A third case relates to a person who was always deaf except when travelling in a carriage; during which time, from the rattling of the wheels, he was perfectly capable of hearing, and engaging in conversation. Sauvages ingeniously ascribes this disease to torpitude or palsy of the organs of the external ear, which require this additional stimulus to rouse them into action, so as to convey the proper sounds addressed to them beyond the tympanum. And he closes with the following illustrations: "*Sic somnolenti oculos non aperiunt, nec proinde aptant ad visum, nisi magna lux oculos commoveat; sic organa genitalia ganeonum à torpore excitantur quandoque per flagra, de quorum usu in reà venereâ scripsit Meibomius.*" Tom. I. 757.

4. Paracusis duplicata, double hearing: the action of the one ear inaccordant with that of the other: sounds heard doubly and in different tones or keys.

Sauvages has given two or three very curious examples upon this last affection: A musician, while blowing his flute, heard two distinct sounds at every note. The sounds were in different keys, and consequently not in harmony; and, as they were heard simultaneously, the one could not be an echo of the other. This singular affection seems to have been the result of a catarrh, and ceased on its termination. On another occasion he was consulted by a person who for several months antecedently had been troubled with a hearing of two distinct voices whenever he was spoken to: the one at least an octave higher than the other, but not in unison with it, and hence producing a harsh and insupportable discordancy. Tom. I. 756.

5. Paracusis illusoria, imaginary sounds: internal sense

sense of sounds, without external causes. Three varieties are given.

α. Sygrius, ringing or tinkling; a sharp, shrill, succussive, sound.

β. Sufurrus, whizzing; an acute, continuous, hissing, sound.

γ. Bombus, beating; a dull heavy intermitting sound. This appears to be very nearly of the same nature as the first species.

6. Paracusis surditas, deafness: total inability of hearing or distinguishing sounds. Three varieties are noted.

α. S. organica; from organic defect.

β. S. atonica; from local debility.

γ. S. paralytica; from local palsy.

Genus III. *Parosmis*, [from *παρα*, and *ὄσμι*, to smell.] The sense of smell vitiated, or lost. (*Anosmia*, *Sauv.* *Linn. Veg. Cull.*) There are three species.

1. *Parosmis acris*, acute smell: smell painfully acute, or sensible to odours not generally perceived.

Generally speaking, the sense of smell in all animals is in proportion to the extent of the Schneiderian or olfactory membrane with which the nostrils are lined, and over which the branches of the olfactory nerves divaricate and ramify. And hence this membrane is much more extensive in quadrupeds and birds, which chiefly trust to the sense of smell in selecting their food, than in man; for it ascends considerably higher, and is for the most part possessed of numerous folds or duplications. It is hereby the hound distinguishes the peculiar scent thrown forth from the body of the hare, and the domestic dog recognizes and identifies his master from all other individuals. Under peculiar circumstances, however, the ordinary apparatus for smell possesses an activity, and sometimes even an intolerable keenness, which by no means belongs to it in its natural state. M. Virey, who has written a very learned treatise upon the subject of odours, asserts that the olfactory sense exists among savages in a far higher degree of activity than among civilized nations, whose power of smell is blunted by an habitual exposure to strong odours, or an intricate combination of them, and by the use of high-flavoured foods. And he might have added, that this sense, like every other, is capable of cultivation, and acquiring delicacy of discrimination by use; that savages, many of whom make a near approach to the life of quadrupeds, employ it, and trust to it, in a similar manner; and that this is, perhaps, a chief cause of the difference he has pointed out. It is in like manner relied upon by persons who are deprived of one or two of the other external senses, as those of sight or hearing, or both; and in these cases it often acquires an extraordinary degree of nicety. In the interesting example of the boy born blind and deaf, lately given to the world by Professor Stewart, and who, in consequence was obliged to rely upon the two faculties of smell and touch alone, in discriminating almost all the objects that surrounded him, he is said, in Mr. Wardrop's history of the case, to have employed the sense of smell on all occasions, like a domestic dog, in distinguishing persons, and chiefly to have depended on it. By this sense he identified his friends and relatives; and conceived a sudden attachment or dislike to strangers according to the odour of the effluvium that escaped from the skin.

The Journal des Sçavans, anno 1667, gives a curious history of a monk, who pretended to be able to ascertain, by the difference of odour alone, the sex and age of a person, whether he were married or single, and the manner of life to which he was accustomed. This, as far as the fact extended, may possibly have been the result of observations grafted upon a stronger natural sense than belongs to mankind in general; and is scarcely to be ranked in the list of diseased actions. But among persons of a highly nervous or irritable idiosyncrasy, Dr. Good had met with numerous instances, and doubtless

other practitioners have also, of an acuteness of smell almost intolerable and distracting to those who were labouring under it, which has fairly constituted an idiopathic affection; and sometimes nearly realized the fanciful description of the poet, by making its possessors ready, at every moment, to "die of a rose in aromatic pain."

There is a curious and ingenious paper in the Transactions of the Swedish Academy, tom. i. from the pen of Linnæus, containing a variety of useful observations on the peculiar qualities given to the smell, taste, and other properties, of animals, in consequence of their feeding on different foods.

2. *Parosmis obtusa*, obtuse smell: smell dull and imperfectly discriminative.

3. *Parosmis experts*, want of smell: total inability of smelling or distinguishing odours. This may be,

α. Organica; from organic defect, or accidental destruction of the olfactory nerve, or its branches; or of the Schneiderian membrane over which they are spread. Or,

β. Paralytica; from local palsy.

Genus IV. *Parageusis*, [from *γαστρις*, taste.] The sense of taste vitiated or lost. (*Ageusia*, *Sauv.* and *Cull.*) There are three species.

1. *Parageusis acris*, acute taste: taste painfully acute, or sensible to flavours not generally perceived.

2. *Parageusis obtusa*, obtuse taste: taste dull and imperfectly discriminative.

3. *Parageusis experts*, total inability of tasting or distinguishing flavours. The papillæ of the tongue destitute of gustatory nerves, or covered with a mucous or other sheath which they cannot penetrate.

The first and last species are perhaps chiefly symptomatic, though not always so. The second is common, and is often connected with obtuse smell; for physiologists have remarked a striking coincidence and sympathy between these two senses; and some have conceived them to be mere modifications of each other. Dr. Good had a lady of twenty-four years of age under his care, of great mental taste and accomplishments, who had always possessed a considerable hebetude of both senses. She could distinguish the smell of a rose from that of garlic, and the taste of port wine from mountain or madeira; but she could not discriminate between the odour of a rose and that of a lily; or between the taste of beef, veal, and pork; and consequently, upon all these points, had no preference of relish.

The loss of taste, and the peculiar changes of the same faculty, in fevers and most inflammatory diseases, are well known.

Genus V. *Parapsis*, [from *παπα*, and *αψις*, touch.] Sense of touch, or general feeling, vitiated or lost. Three species.

1. *Parapsis acris*: touch painfully acute, or sensible to impressions not generally perceived. Four varieties.

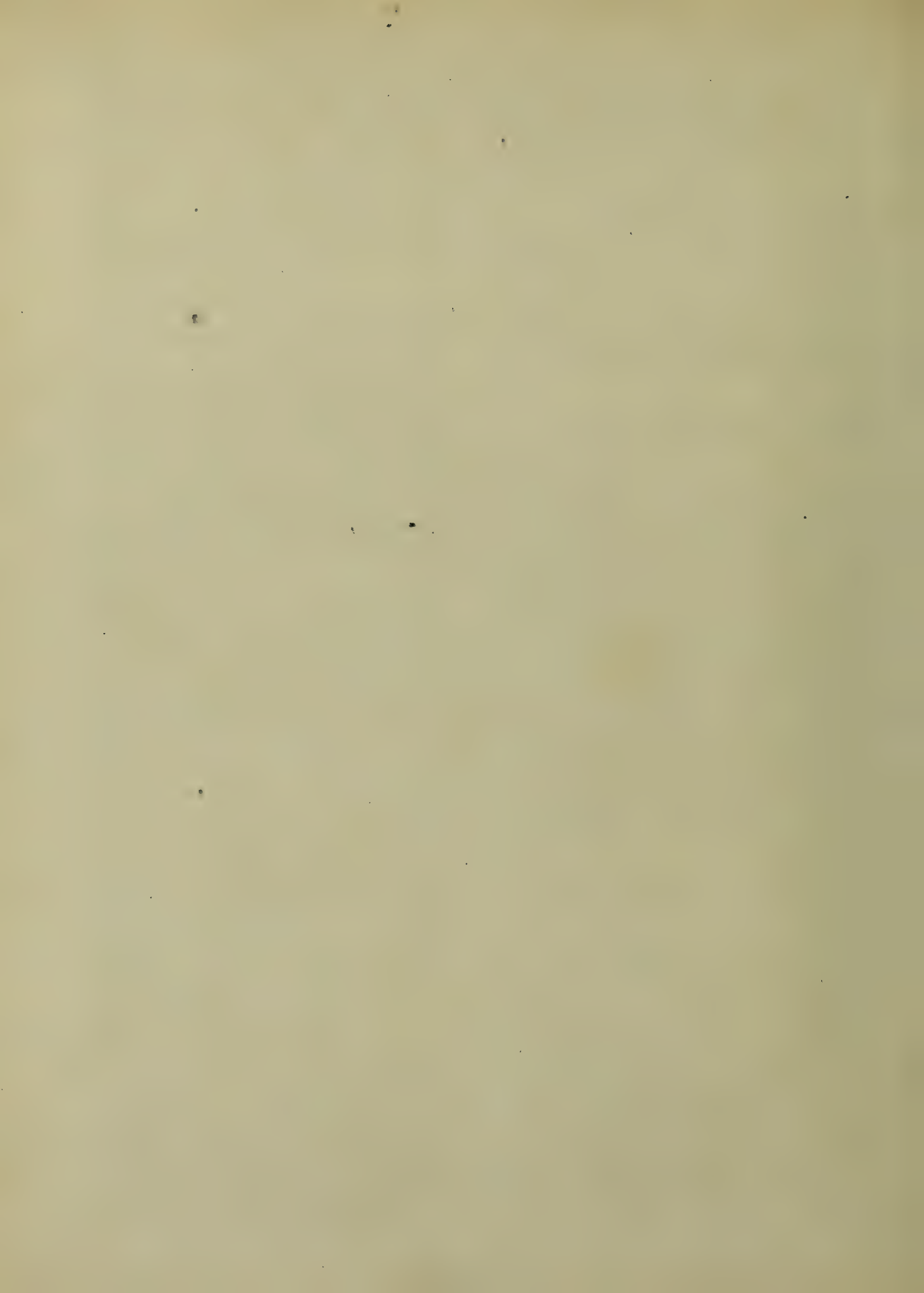
α. *P. teneritudo*, forenses: painful uneasiness or tenderness, local or general, on being touched, with a pressure usually unaccompanied with troublesome feeling. Occasionally unconnected and idiopathic, but more frequently a symptom or sequel of fevers, debility, lassitude, violent exercise, or catching cold.

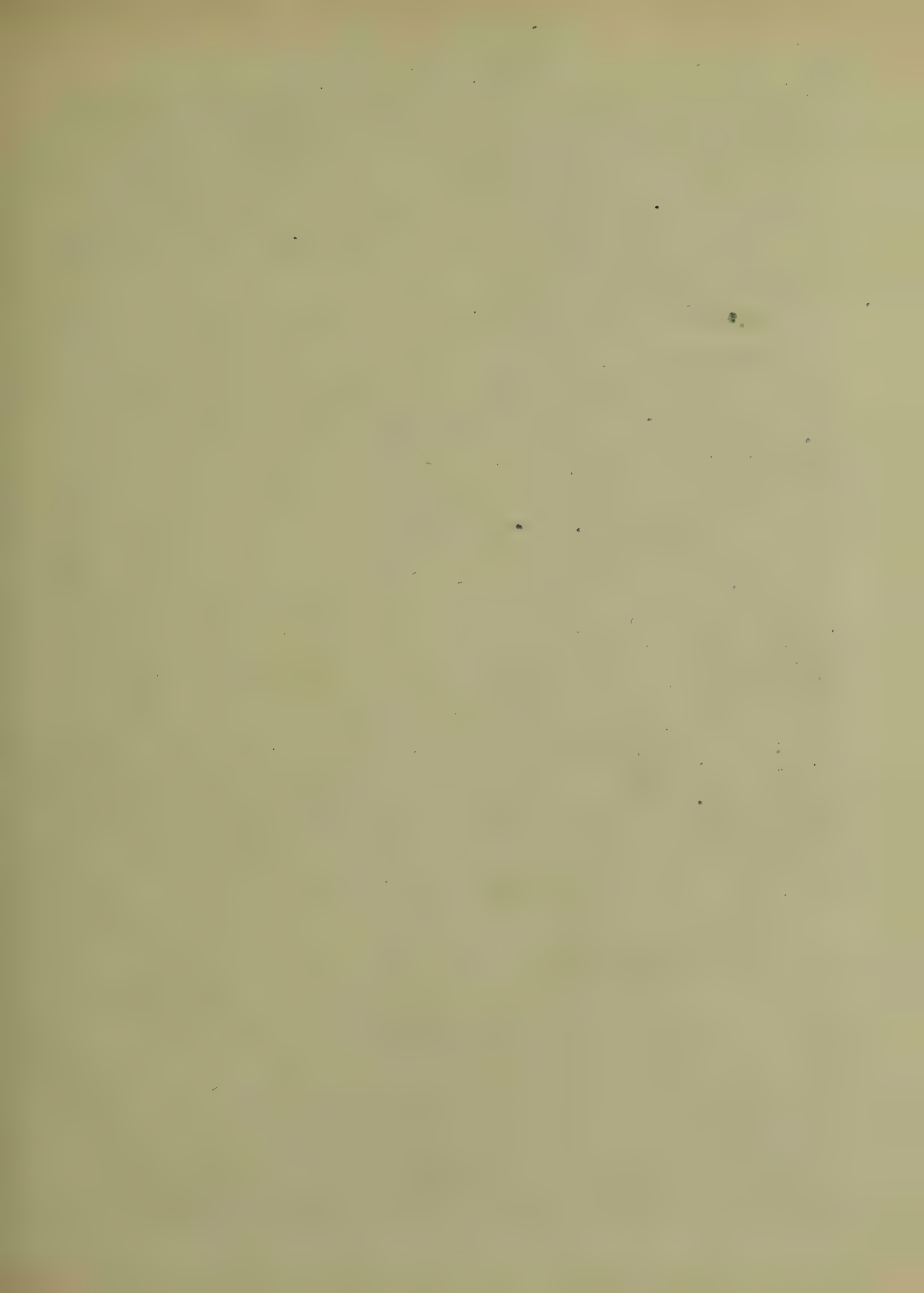
β. *P. pruritus*, itching: painful titillation, local or general, relieved by rubbing.

γ. *P. algor*, coldness: sense of temperature, local or general, below that of pleasant and natural warmth. As an idiopathic affection chiefly local, and most common to the head and feet.

δ. *P. ardor*, heat: sense of temperature, local or general, above that of pleasant and natural coolness: As an idiopathic affection occurring chiefly in plethoric and irritable habits. Found also as a symptom in the second stage of fevers, inflammations, and antonic empythema.

2. *Parapsis*





2. Parapfis expers; total insensibility to objects of touch. Divided into,

α. Simplex, numbness: confined locally or generally to the sense of touch; sometimes accompanied with uneasiness.

β. Complicata: complicated with insensibility in several or all the other senses.

3. Parapfis illusoria: imaginary sense of touch or general feeling in organs that have no existence. Common to those who have suffered amputation. Found also, occasionally as a symptom, in hypochondriasis and other mental affections.

Order III. CINETICA, [κίνησις, from κινεω, to move.] Disorders affecting the Muscles. Irregular action of the muscles or muscular fibres; commonly denominated *spasms*. This order contains four genera.

Genus I. *Entasia*, [from ετείνω, to stretch.] Tonic spasm. Irregular muscular action, producing contraction, rigidity, or both. There are seven species.

1. *Entasia priapismus*, priapism; so called from Priapus, the son of Venus and Bacchus, who is usually thus represented in paintings and sculptures. Permanent rigidity and erection of the penis, without concupiscence. For the most part the consequence of cold, cantharides, clap, or dysfury. It seems to arise from a spasmodic contraction of the *erectores penis*, wholly unconnected with the state of fulness of the *vesiculæ seminales*. It is a disease of advanced life. Priapismus affords a striking instance of spasm arising from debility. Camphor and opium at night, with purgatives and diluents in the daytime, are the best remedies; but we can in general only palliate; the disease is seldom removed.

2. *Entasia loxia*, stiff-neck: permanent contraction of the flexor muscles on the right or left of the neck, drawing the head obliquely in the same direction. Three varieties.

α. *L. disparis*; from disparity in the length of the muscles opposed to each other.

β. *L. entonica*; from excess of muscular action on the contracted side.

γ. *L. atonica*; from direct atony of the antagonist muscles. Found also, occasionally, as a symptom, in sprains or inflammations of the neck; in catarrh; and in contractions of the skin of the neck from severe burns.

This and the following species will require to have their treatment varied according to the exciting cause; and, when not arising from inflammation or injury, may be subject to the same treatment as that which applies to atony of the muscles in general. These indications we shall more particularly develop under our description of Tetanus.

3. *Entasia articularis*, muscular stiff-joint: permanent and rigid contraction of one or more articular muscles or their tendons. Three varieties.

α. *Entonica*, articular spasm; from excess of action in the muscles contracted.

β. *Atonica*; from direct atony of the antagonist muscles.

γ. *Inusitata*; from long confinement or neglect of use. Found also occasionally, as a symptom, in articular inflammations, abscesses, and ulcers secreting an irritating fluid.

4. *Entasia trismus*, locked jaw: permanent and rigid fixation of the muscles of the lower jaw. This has also three varieties.

α. *Tr. nascentium*; attacking infants during the first fortnight after birth. Probably the result of acrimony in the stomach. This is principally found in hot climates; and results occasionally from irritation in the digestive organs, and in other cases from the irritable state of the divided funis. As it is seldom cured when once formed, practitioners in hot climates should be careful to keep the bowels open, and inspect occasionally the state of the funis.

β. *Tr. traumaticus*; occurring at every age as the con-

sequence of a wound, puncture, or ulcer; chiefly in hot climates.

The following varieties of this, and of all the next species, will be treated of together, as being of the same nature, and differing in appearance merely from the peculiar muscles affected.

γ. *Tr. algidus*; occurring after exposure to cold and damp, especially the dew of evening.

5. *Entasia tetanus*: permanent and rigid fixation of many or all the voluntary muscles; with incurvation of the body, and dyspnoea. Four varieties.

α. *T. anticus*, (*Emprothotonus*, *Auct. var.*) tetanus of the flexor muscles: body rigidly bent backward.

β. *T. dorsalis*, (*Opisthotonus*, *Auct. var.*) tetanus of the extensor muscles: body rigidly bent forward.

γ. *T. lateralis*: tetanus of the lateral muscles: body rigidly bent laterally.

δ. *T. catochus*: tetanus general, with little or no difficulty of breathing; chronic and periodical.

Tetanus is very strictly a nervous malady. It follows mechanical or chemical irritations, under circumstances of high temperature or irritable habit of body, and sometimes without these circumstances. The irritations are of various kinds. The most common is a wound, puncture, or bruise, particularly if a large nerve be wounded. Next in order come gastric and internal irritations; and these are so generally met with even when external injury exists, that one might almost infer that they always form a link in the chain of morbid action. Another cause is put down in medical systems; viz. the sudden application of cold to the heated body. From whatever cause, however, the irritation arises, its effects are exerted in such a manner on the muscular system, as to produce a rigid and permanent degree of contraction. Unlike what is observed in nervous diseases in general, this disorder does not abate when its original cause is removed. If the limb be amputated on which the irritating wound has been inflicted, no relief follows. Hence it seems that the violence of the irritation in the first instance causes an actual disease of the nervous system capable of exciting continually muscular action. What this state may be we know not. It has been asserted, that it is inflammation of the spinal marrow. «The state of the vascular system does not bear out this assertion; neither is it borne out by the mode of attack, which generally comes on first in the jaw, a part not depending on the spinal marrow for its nervous supply. Moreover the effect of remedies does not bear out the above proposition; the most extravagant bleedings have often failed to procure relief; while stimulants have been sometimes successful. We should conclude, therefore, that tetanus is a disease which arises from irritation of the extremities of nerves, which consists in such a change of the nervous centres of motion, that they continually and excessively maintain their stimulation on the muscular powers; and that, when this state of disease (when it may be) is induced, it goes on independently of the causes which produced it. This explanation by no means involves the question, whether or not tetanus be spinal inflammation: it only refuses to adopt the affirmative, on account of the paucity of dissections on which it is founded.

The first symptom the attentive practitioner remarks in tetanus, is a transient stiffening of the limbs during sleep, and sometimes spasmodic twitches. Another symptom, which is only useful as indicating that tetanus is likely to occur, is suspension of the alvine discharges. The next symptom is slight stiffness in the back part of the neck and about the shoulders, which, gradually increasing, impedes the rotatory motions of the head, and also its flexion forwards: so that the patient cannot look downwards, or to either side, without turning his whole body. This uneasy feeling, being chiefly felt on motion, very much resembles what occurs from rheumatism, but it is accompanied with a sense of general lassitude and debility. The rigidity now extends from the back of the neck to the

4 I muscles

muscles of the jaw, and of the root of the tongue, so that both mastication and swallowing become difficult and painful; and at length impossible. The attempt at deglutition is attended with convulsive efforts; especially when liquids are endeavoured to be swallowed. So great is the distress which accompanies these convulsions, that the patient becomes very reluctant to renew the trials, and refuses all nourishment; and it sometimes inspires him with even a dread of the sight of water.

As the disease advances, another set of symptoms appears, bringing with them a considerable increase to the sufferings of the patient. A sudden and violent pain is felt shooting from the lower extremity of the sternum to the spine, in the situation of the diaphragm. These spasms recur from time to time, at short intervals; and at each recurrence, give the signal for an immediate aggravation of all the other spasms. The muscles of the neck and jaw are immediately called into violent action; the head is pulled strongly backwards; and the jaw becomes firmly clenched. These periodical accessions of spasm become more severe, and their effects more durable; so that the head continues to be in a state of retraction, and the jaw is permanently closed, the teeth being so firmly set together, as not to admit of the smallest opening. Such constitutes what may be regarded as the first stage of the disease; which sometimes takes up three or four days. At other times the disease establishes itself, with its whole train of dreadful symptoms, in a few hours; in which case the danger is imminent; as death generally takes place in from twenty-four to forty-eight hours, and the patient very rarely passes over the third day.

The continuance of the disease, if the patient survive the immediate attack, is marked by the increasing spasm of the diaphragm, which now returns every ten or fifteen minutes, and is instantly succeeded by a stronger retraction of the head, and rigidity of the muscles extending down the back, along the spine, and affecting even those of the lower extremities. Their contractions increasing in force, the body is frequently raised in the form of a bow, resting upon the head and feet alone: a state which is more particularly denominated *opisthotomos*. The countenance is pale and contracted; the mastoid, coraco-hyoid, and sterno-hyoid, muscles, together with the others concerned in deglutition, and the deltoid and pectoral muscles, are most violently contracted, so that the shoulders are strongly raised forwards, and the arms are stretched out, or drawn across the body; but the wrists and fingers seem not to be affected. In a few seconds a remission takes place; the shoulders and arms recline, and the inferior extremities relax; yet not so entirely, but that generally such a degree of rigidity continues as to prevent their being bent, even when this is attempted by another person. The muscles on the sides and fore part of the neck continue still contracted, although not so strongly; but their action is overcome by the number and strength of the posterior ones; so that the contraction of the head constantly remains. The patient breathes quick for some minutes, as if he had been excessively exercised, and the pulse is small, fluttering, and irregular; but both become more calm and slow. The face is sometimes pale in the intervals, but oftener flushed; and the whole countenance expresses strong appearances of the most melancholy distress; as well on account of the terror the patient feels at the approaching paroxysm, as from the torture he has suffered from the last, of which the painful contractions he still feels perpetually remind him. He, for the most part, desires to lie still as much as possible, and to avoid all attempts at drinking, speaking, or any kind of motion; all of which are apt to occasion a return of the spasm in all its horrors. Some, indeed, are solicitous to try a change of position, in hopes of obtaining one of greater ease; but the act of turning the patient never fails to bring on an attack of the convulsion, by which the head is drawn back to the spine: and it is at length found, that the best means of avoiding this is for him to lie perfectly still on the back.

It may, in general, be observed, that the extensor muscles are affected with spasm before the flexors. In the lower extremities, indeed, both the flexor and extensor muscles are commonly at the same time affected, and keep the limbs rigidly extended. The flexors of the head, and the muscles that pull down the lower jaw, become affected in the progress of the disease, together with the abdominal muscles; so that the belly is strongly retracted, and feels hard, like a piece of board. The spasm of these and the other flexor muscles, becoming so powerful as to balance the action of the extensors, is a circumstance that marks the advance of the disease, and may be regarded as constituting the commencement of a *third stage*. In this situation the body and limbs are perfectly straight and rigid, and incapable of being moved in any way; and it is to this condition that the term *tetanus* has been more especially applied. It is a state of the most exquisite suffering: the patient is on the rack from the continual recurrence of the spasm, which has scarcely any remission. The recti muscles of the abdomen often contract unequally, producing the appearance of hard balls in particular parts. The whole belly is drawn inwards, and does not yield in the least to the descent of the diaphragm in inspiration. Although the lower extremities are always rigid at this period, yet their action is so violent during the height of the paroxysms, that, were it not for the standers-by, the patient would be projected feet-foremost off the bed; or would, at other times, be pushed upwards with such an impetus as to strike the head with great force against whatever might happen to be in the way. Occasionally, the flexor muscles acquire the preponderance over the extensors, and the trunk of the body is bent forwards, the chin being fixed to the breast. This is what has been called *emprosthotomos*, and occurs only in the most violent, and of course the least frequent, form of the disease. It would appear from some cases reported by Sauvages, that these opposite states are disposed to alternate with one another.

In extreme cases, there are hardly any of the voluntary muscles that remain in their natural state. The face and eyes are distorted; the tongue is suddenly darted out between the teeth, and often miserably lacerated from their closing at the same moment. Even the small muscles of the ear partake of the spasmodic action, which so universally prevails in the system. While the tongue is thrust out, the muscular flesh, which is situated between the arch of the lower jaw and the upper part of the trachea, is drawn upwards within the throat. The countenance is much contracted; a general sweat breaks out; the eyes are watery and languid; and a pale or bloody froth bubbles out from between the lips. Tetanus, in these violent forms, is perhaps the most painful disease that can affect the human frame. So exquisite a degree of pain would scarcely be compatible with life, were it not occasionally allayed by the short and imperfect remissions of spasm which occur. A more continued and severe spasm, or a general convulsion, generally finishes the tragedy, and releases the unhappy victim from all his misery: or, if already too exhausted by the severity of pain to admit of this mode of termination, delirium often ensues, protects the patient by a happy insensibility to further suffering, and smooths the avenue to death, which is then preceded by a general relaxation of the spasms.

Such are the symptoms which peculiarly belong to tetanus: and it is, perhaps, the most remarkable circumstance attending the disease, that hardly any function is primarily affected, except that of muscular action. The senses and appetites are perfect and entire; the intellectual functions are undisturbed; and the natural functions proceed in their usual course. Fever is neither an essential nor a common attendant on the disease. In the first stage, when the spasm is confined to a few muscles, the pulse is not affected: it becomes accelerated only when the spasmodic actions are general; and this merely in consequence, as it would appear, of the mechanical effect

effect produced on the blood-vessels by the contractions of the muscles, which will hurry on the circulation, and throw the blood upon the heart in larger quantity than usual, rendering the pulse contracted, frequent, and irregular. The respiration is hurried from the same cause, and the temperature of the body, as might be expected, is increased in the same proportion. That these symptoms are not the effect of fever, appears from the state of the blood, which is found to be of a looser texture than natural, and never exhibits the buffy coat, as in inflammatory diseases. On some occasions, indeed, when the disorder is very violent, the arterial actions are increased, and a febrile state prevails; and this appears to take place more frequently when the disease has originated from cold, than when it has been excited by wounds. The skin is at first natural, but, as the disease advances, is covered with a cold sweat. The tongue is always moist. Vomiting sometimes takes place early in the complaint, but it commonly subsides in the progress of it: it is even usual for the appetite of hunger to remain through the whole course of the disease; and what food can be got down appears to be sufficiently well digested. Some local effects seem to be attributable to the contractions of the abdominal muscles. The sphincter of the bladder is occasionally affected with spasm, so as to impede the discharge of urine, which is voided with pain and difficulty: at other times, its secretion is suppressed. When it can be observed, it is stated as being high-coloured, and somewhat turbid. The bowels are found to be, in every instance, obstinately costive, a state which may partly be accounted for by the effect of opiates, which are so generally administered for the cure; but which, independently of this cause, appears to be inherent in the disease itself. The bowels require the most drastic purgatives; and there is a great sense of uneasiness about the precordia. In the latter stages of this disorder, indeed, when the powers of life begin to decline from the vast expenditure of energy occasioned by the violent muscular actions, every function in the system partakes of the general disorder; the intellect gives way, and the patient sinks from exhaustion alone, if a general convulsion does not occur to hasten his end. It is mentioned by Dr. Cullen, that, in several cases, a miliary eruption has appeared upon the skin; but he expresses a doubt whether this was a symptom of the disease, or the effect of a certain treatment of it. It has not been observed, he adds, to denote either safety or danger, or to have any effect in changing the course of the distemper.

Tetanus arising from wounds is in general slower in its progress than that which proceeds from cold: but is attended with more danger to life. It is often eight or ten days, and sometimes much longer, after the infliction of a wound, before the first symptoms of tetanus make their appearance: and this frequently happens when the effects of the injury on the part itself appear to have subsided; when the wound has healed, and no pain or uneasiness has remained.

Sometimes the disease is very sudden in its accession, when it is also more severe. Generally, however, it makes its attack in the gradual manner before described. The most rapidly fatal case that has ever been recorded, is one that we have on the authority of the late professor Robison of Edinburgh. It occurred in a negro, who was a waiter at a tavern, and who happened to scratch his thumb with the broken edge of a china plate, and who died of tetanus a quarter of an hour after this apparently slight accident.

In the late campaigns of our armies in the peninsula of Spain and Portugal, according to the report of sir James Macgrigor, tetanus occurred in every description, and in every stage of wounds, from the slightest to the most formidable, from the healthy and the sloughing, from the incised and lacerated, from the most simple and most complicated. It occurred at uncertain periods; but it was remarked, that, if it did not commence before

twenty-two days from the date of the wound, the patient was safe.

As to the appearance of a fore which gives rise to tetanus, this is by no means peculiar. Some have stated that the sore is generally in an irritable and morbid state, and by no means disposed to suppuration. M. Larrey states that the wound is generally dry, or affords only a scanty serous exudation. Certain it is, however, that tetanus, as before noticed, is no uncommon attendant on wounds completely healed.

It has been supposed by many, that tetanus arose from the partial division of some nervous fibres, in consequence of which the undivided filaments were unequally and violently stretched: a state which would be remedied by their complete division. Experience, however, the stubborn enemy to so many hypotheses, has by no means proved favourable to this opinion. From the more violent forms of the disease hardly any instance of recovery has been known to take place. On the other hand, the mere protraction of the symptoms is an indication of the comparative mildness of the disease. Indeed it is a remark as old as Hippocrates, that, if a patient survives the fourth day without suffering an exacerbation of his complaint, he is safe. Dr. Parry has adduced the velocity of the circulation as an useful criterion of the danger of the disease; and observes, that, if the pulse be not above 100 or 110 by the fourth or fifth day, the patient almost always recovers; but, if it be quickened early, that it proves fatal; and yet there are a few instances of recovery where the pulse has risen to 120 on the first day. We must remark however, that, in upwards of twenty cases of this disease which Dr. Morrison witnessed among negroes, the pulse was in no instance accelerated in the manner related by Dr. Parry. This author never knew it above 98, whether the termination was favourable or fatal. The following prognostic passage we shall transcribe. "When the disease comes on gradually; when for the first three or four days the muscles of the jaws are solely affected, and that perhaps not in any alarming degree; when the abdomen is not preternaturally hard, or the bowels obstinately costive; when the skin is moist and moderately warm, and above all when the patient enjoys sleep; we may (by the means hereafter to be spoken of) entertain strong hopes of an eventual recovery. An increased flow of saliva, where mercury has or has not been used, is always to be regarded as favourable; the less the general air of the countenance is changed, the better. On the other hand, when the attack is violent and sudden; when the muscles of the neck, back, and abdomen, are rigidly contracted; when the patient complains of a shooting pain from the sternum towards the spine; when the belly feels hard like a board, and the least pressure thereon produces spasmodic twitchings or contractions of the muscles of the neck, jaws, &c. or when the same effect is brought about by the presentation of any substance (solid or fluid) near the mouth, we have much reason to fear a fatal termination. Spasmodic startings of the muscles set in sometimes early in the disease, and, recurring every eight or ten minutes, are to be regarded as very unfavourable."

The only disease which tetanus can be confounded with, is rabies contagiosa. In the latter, however, there is generally fever; frequently increased heat of the body. In rabies, vomiting is common at the commencement; not so in tetanus. The delirium, too, of hydrophobia, is absent in tetanus. The shooting pain from the sternum to the spine is seldom wanting in tetanus or present in the other.

Few patients fall a sacrifice after the ninth or tenth days, which period they never could have attained, unless the violence of the complaint had in a great measure subsided. In this milder form, however, it may be prolonged several weeks; and sometimes the spasmodic disposition remains even for months, before health is completely restored. The pulse, in these cases, continues slow

slow and hard, and the belly bound: but, if blood be drawn, it does not exhibit any difference from its usual state. Under every circumstance of recovery, indeed, the convalescent labours long under general debility, and cannot, for months, raise himself from a supine or recumbent posture without assistance, nor without pain.

Occasional deviations from the course above described are met with in different cases. The most singular of these anomalies is the one recorded by Sir Gilbert Blane, in which tetanus prevailed to a very considerable extent, without affecting the patient with the least degree of pain. The spasms were, in this instance, accompanied with a tingling sensation, which was even rather agreeable than distressing. The case, however, terminated fatally; but, to the last, no pain was experienced. In two cases mentioned by the same author, the spasms affected only the side of the body in which the wound was situated.

The result of dissections of patients who have died of tetanus throws little light on the nature of this terrible affection. Sometimes there are found slight effusions within the cranium; but, in general, no morbid appearance whatever can be detected in the head. There appears to be always more or less of an inflammatory appearance in the villous coat about the œsophagus and stomach in the neighbourhood of the cardia. Besides the redness and increased vascularity of these parts, M. Larrey states that he found the pharynx and œsophagus much contracted, and covered with a viscid reddish mucus. Dr. McArthur found, in several cases, the intestines much inflamed; and in two of them a yellow waxy fluid, of a peculiar offensive smell, covering their internal surface: but whether the inflammation was primary, or only a consequence of the pressure of the abdominal muscles, which contract so violently in this disease, he is unable to decide. More recent dissections have displayed inflammation and its consequences in the spinal marrow; but the cases hitherto published are too few in number to allow us to draw general conclusions from them.

The obscurity which involves both the *ratio symptomatum* and the proximate cause of tetanic affections, has occasioned the practice in these disorders to be mostly empirical. The indication of cure which is generally applicable in all diseases, namely the removal of the exciting causes, has but little place in a morbid condition, which is the consequence of causes that in general have ceased to act, or which it is not in our power either to remove or control. In those cases where we could suppose local irritation to be still operating, the most effectual method of counteracting its effects on the system, would obviously be to intercept all communication between the seat of the irritation and the sensorium. If, however, the disease has already established itself, and the severe symptoms have come on, it does not appear that this would succeed in arresting the course of the disorder. Experience has but too fully shown, that amputation of the limb from the injury of which the tetanus had arisen, will very seldom procure even a mitigation of the symptoms, if performed after a certain period from their first appearance. This plan was fully tried in our army at Toulouise, and totally failed. In some instances, however, it is said that a favourable change has ensued, and that patients have even recovered by the sacrifice of the wounded limb: and it has been remarked, that the spasms relaxed immediately on the division of the soft parts by the knife, and before the saw was applied to the bone, in order to complete the operation. It is, therefore, highly probable, that *the free division of the parts above the wound*, or still more certainly the amputation of the limb, would, at a certain stage of the affection, secure the patient from the approach of tetanus. But the difficulty is here to estimate the probability of the patient's having the disease, as nothing short of the certainty of its being at hand could well justify the operation.

As it is matter of experience, that an early and highly irritable and painful condition of the wound has a ten-

dency to excite tetanus; as well as a state in which the discharge is of a peculiar unhealthy character, or is suppressed altogether, our immediate object should be to allay as much as possible the local irritation, and to re-establish a healthy secretion of pus. Mechanical causes of irritation should as much as possible be obviated, by early attention to remove splinters of bone, balls, or other foreign bodies that may be lodged in the wound. Poultices and soothing applications will answer the double purpose of quieting local inflammation, and bringing on healthy suppuration: the irritability of the surface may sometimes be most effectually destroyed by lunar caustic; after which, an emollient poultice may be applied. An opposite plan of treatment has been recommended by Dr. Rush; namely, that of exciting considerable inflammation in the wounded part, by epithems of turpentine, and other highly-stimulating applications; which, though it may in certain cases have succeeded in preventing tetanus, does not appear to be generally applicable, and seems accordingly to have been abandoned. On the contrary, it has of late been the universal practice in the navy, to add tincture of opium to the dressings applied to wounds, with a view of preventing tetanus. With the intention of re-exciting suppuration where there is no discharge, M. Larrey recommends the application of blisters as near as possible to the wound, and adduces instances of success from this mode of treatment.

But the cure of tetanus, when once it has commenced, is to be sought for more by the use of general than of topical remedies. The seat of the disorder has been transferred to the cranial and spinal nervous system, and our efforts must be directed to allay their inordinate action. Bleeding has received the fullest trials in tetanus. Occasionally this has cured the disease; occasionally it has mitigated the sufferings of the patient, and smoothed the way towards death; and so perfectly innoxious does it seem in all cases, that it may be fearlessly tried in all. A case has been related in which the application of leeches to the spine was attended with a good effect. It is given, however, on the authority of one who conceived that spinal inflammation and tetanus were the same.

The affusion of cold water has in general been attended with great benefit. It is a practice particularly recommended by Dr. Wright, in the London Medical Observations, and is sanctioned by the concurring testimonies of Dr. Cochrane in the Medical Commentaries, and of Dr. Currie in his Medical Reports, as well as by many other practitioners. A large pailful of cold water should be thrown upon the patient every two or three hours; he is to be immediately wiped dry, and laid in bed after each affusion, and an opiate draught administered. Some remission of the spasms will in this way be generally obtained; and many instances are upon record, of complete cures being effected by perseverance in this plan. Before the introduction of this practice, the warm bath was very commonly employed; the patient, after using it, being placed in bed, without being dried, between two blankets, with a view to bring out a sweat. It does not appear, however, that this plan was attended with any general or permanent advantage; and is certainly inferior in efficacy to the cold affusion.

But neither bleeding nor cold affusion offers so much to depend on in the cure of tetanus as active purging. The disordered state of the alvine discharges in this disease first led Mr. Abernethy to adopt the practice of purging for its cure; and of late the most unequivocal testimonials of its efficacy have arisen from all quarters. Mr. Abernethy asked what was the state of the bowels between the infliction of external injury and the coming on of tetanus? and the answer to this is pretty well known, the bowels are generally in a costive or otherwise morbid condition. And since this fact has been known, the proportion of tetanic cases from wounds has been much less than formerly. Under these circumstances, it

is therefore highly necessary to purge the patient as soon as the disease has made its attack. Should trismus be so great that the opening of the jaws is prevented, one or more teeth must be drawn, and purges conveyed by means of the elastic catheter and syringe into the stomach in large and repeated quantities; at the same time clysters must be given. Men of the best experience recommend salivating the system, as early as possible, with mercury; and consequently direct us to give calomel by the mouth, and rub mercury-ointment along the course of the spine and other parts, with a view to induce salivation; and this has often had a good effect. Opium is a very useful remedy; it allays the irritation of the nervous system in an extraordinary degree; and, though we have heard much of the stimulating effect of opium, we cannot but view it as directly sedative as far as regards the spinal marrow and medulla oblongata, notwithstanding it may have a stimulating influence on those superior portions which are considered by most philosophers to be the instruments of the mental operations. At all events, experience decidedly favours the use of opium in alleviating, if not in curing, tetanus. It must be given in large doses: from one drachm to half an ounce of laudanum may be prescribed according to circumstances; always providing that its operation be closely watched, and its repetition regulated by its effects.

We pass over a variety of drugs which have obtained a name for the cure of tetanus, because the cases related of their efficacy are so few as to warrant us in supposing them spontaneously cured. Reasoning from the sedative effect which the rubbing of belladonna on the forehead has upon the eye, we would suggest that this measure might be tried with advantage along the course of the spine for the relief of tetanus. Its internal exhibition might likewise be usefully resorted to.

The use of blisters has not been attended with much success in this disease. They are useful adjuncts applied along the spine. As showing in a strong light the good effects of counter-irritation in this disease, we shall probably be pardoned by our readers for presenting the following account of a barbarous remedy used in the Tonga islands. The inhabitants of these places adopt a remedy which they borrowed of those of the Fiji islands. It consists in the operation of *tocolôsi*, or passing a reed first wetted with saliva into the urethra, so as to occasion a considerable irritation and discharge of blood; and, if the general spasm is very violent, they make a seton of this passage, by passing down a double thread, looped over the end of the reed; and, when it is felt in the perinæum, they cut down upon it, seize hold of the thread, and withdraw the reed, so that the two ends of the thread hang from the orifice of the urethra, and the doubled part from the artificial opening in the perinæum; the thread is occasionally drawn backwards and forwards, which excites very great pain and abundant discharge of blood. The latter operation Mr. Mariner saw performed several times; but only twice for tetanus, arising in both instances from wounds in the foot; in these cases the spasms, but particularly the convulsive paroxysms, were exceedingly violent, extending to the whole body, neck, face, trunk, and extremities; but in neither case was the jaw permanently locked, though on every case it was violently closed for a few seconds. In both cases the disease came on suddenly, three or four days after the wound was received, which was from an arrow not barbed. The moment the symptoms became evident, *tocolôsi* was performed. In the short space of two hours, one of them was greatly relieved, and the other in about six or eight hours. The following day, the one was quite well, and afterwards had no other attack; consequently the thread was withdrawn: but the other, on the second day, was not quite free from spasmodic symptoms; and, a paroxysm coming on, the seton was moved frequently, which in two or three hours gave him great relief, and he afterwards had no other attack; it was thought prudent, however, to keep in the seton till the fourth or fifth day,

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when it was withdrawn. The effect of this operation was a considerable pain and tumefaction of the penis, but which gradually subsided in about five or six days. The artificial openings in both cases healed spontaneously, without any difficulty. (Mariner's Account of the Tonga Islands.)

6. Entasia acrotismus; failure or cessation of the pulse; with little or no disturbance of perception or voluntary power. Two varieties.

a. A. universalis; extending over the whole arterial system; and connected with sternalgia. The instances on record of this affection are few. The following list we copy from Dr. Good. "Suspensions of pulsation, without any other affection of the system. *Anecdotes de Médecine*, p. 199. *Marcell. Dom. lib. vi. cap. 2.*—For seven days, without other affection. *Riordin, Lin. Med. 1696.*—Seven days before death. *Valisneri, Opp. iii. p. 278.*—Chronic, and continuing through the whole term of life. *Berryat Hist. de l'Acad. des Sciences à Paris, 1748.*" See also Mr. J. Hunter's affection in Sir Everard Home's Life of him, prefixed to his Treatise on Inflammation, p. xlv. consisting of a total suspension of pulsation for nearly an hour, with cessation of involuntary breathing for the same time; countenance pale and ghastly; faculties of the mind, and power over the voluntary muscles, perfect; internal stimulants useless. Notwithstanding the high authority last quoted, it does seem a circumstance contradictory to all the phenomena of life that have been observed, that the faculties of the mind, and the power of the voluntary muscles, could continue perfect while the circulation was suspended. It seems more reasonable to suppose (and indeed some warm advocates of Mr. Hunter's doctrines do suppose), that the action of the heart was not in his case entirely suspended, but at the same time so far lessened that no pulsation was conveyed to the hand. The cessation of pulsation might actually take place in the wrist from the feeble action of the heart. The case of Mr. J. Hunter is however one of much interest, and worthy of attentive consideration.

Dr. Cheyne, in one of his medical treatises, relates a case, the accuracy of which is established by an irrefragable combination of evidence, of a man who could die, to all appearance, at any time that he chose, and, after having lain for a considerable period exactly as a corpse, was able, as it should seem, by a voluntary struggle, to restore to himself the appearance and all the various functions of animation and intellect. It is to be inferred from the latter part of the story, that the unnatural and painful exertion by which this person assumed the semblance of disease, produced at length a really fatal result. Death would be no longer mocked with impunity. The counterfeit corpse, a few hours after its revival, relapsed into a state which was capable of no subsequent resuscitation. But the case is so interesting and remarkable as to deserve our giving it in all the detail with which Dr. Cheyne presents it to his readers. "He could die or expire when he pleased; and yet, by an effort, or somehow, he could come to life again. He insisted so much upon our seeing the trial made, that we were at last forced to comply. We all three felt his pulse first; it was distinct, though small and thready; and his heart had its usual beating. He composed himself on his back, and lay in a still posture for some time; while I held his right hand, Dr. Barnard laid his hand on his heart, and Mr. Skrine held a clear looking-glass to his mouth. I found his pulse sink gradually, till at last I could not feel any by the most exact and nice touch. Dr. Baynard could not feel the least motion in his heart, nor Mr. Skrine perceive the least sort of breath on the bright mirror he held to his mouth. Then each of us, by turns, examined his arm, heart, breath; but could not, by the nicest scrutiny, discover the least symptoms of life in him. We reasoned a long time about this odd appearance as well as we could; and, finding he still continued in that condition, we began to conclude that he had indeed carried the experiment too far; and at last we were satisfied that he was

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actually

actually dead; and were just ready to leave him. This continued about half an hour. By nine o'clock in the morning, in autumn, as we were going away, we observed some motion about the body, and upon examination found his pulse and the motion of his heart gradually returning; he began to breathe gently and speak softly. We were all astonished to the last degree at this unexpected change; and, after some further conversation with him and with ourselves, went away fully satisfied as to all the particulars of this fact, but not being able to form any rational scheme how to account for it. He afterwards called for his attorney, added a codicil to his will, and calmly and composedly died about five or six o'clock that evening."

β. A. particularis; confined to particular parts of the arterial system. "Over the whole system except the heart, which pulsed violently. *Beggi* in *Pachioni* opp.—Confined to the arteries of a single arm. *Camerar.* *Memorab.* Cent. ii. p. 54." It is sometimes the result of aneurism or partial paralysis. This is by no means rare, certain irregularities with regard to particular arteries being often remarked.

γ. Entasia systremma, cramp. (*Tetanus dolorificus, Darwin.*) Sudden and rigid contraction and convulsion of one or more muscles of the body; mostly those of the stomach and extremities, vehemently painful, but of short duration. Chiefly produced by a sudden chill, as that of the night-air, or of water when swimming in it; often occasioned by an uneasy position, or undue distention of the muscles; and hence frequently attacking in sleep. Found also, as a symptom, in cholera; and occasionally in pregnancy and during labour.

Cramp, or spasm, is one of the most painful diseases we are liable to; at the same time it is the least dangerous. Change of temperature, and agents which increase the transmission of nervous impulse to the cramped part, readily effect a cure. Of course this does not apply to spasms arising from distant irritations (for these latter must then be removed), or to the spasms of the parturient state, which are induced by pressure on nerves or blood-vessels.

Genus II. *Neuralgia*, [from *νευρον*, a nerve, and *αλγος*, pain.] Contraction and distortion of a particular muscle or group of muscles, with partial trepidations, and acute lancinating pains in the course of the principal nerves; paroxysm short, recurring at irregular periods. There are two species described by Dr. Good, which however are perfectly analogous.

1. *Neuralgia faciei, tic douloureux*: contraction and distortion seated about the ala nasi and upper lip; pains shooting to the orbit; often to the ear, and over the cheek, palate, teeth, and fauces.

2. *Neuralgia pedis*: racking and intolerable pain seated about the heel; tremulously shooting in irregular directions towards the ankle and bones of the tarsus. This species is described from a very marked case which occurred to Dr. Good in a gentleman, otherwise of good health, about forty-five years of age, who had been long a victim to it. The pain during the paroxysm was so severe as nearly to make him faint, and was generally compared by him to that of scalding verjuice poured over a wound. Here the tibial branch of the ischiatic nerve seemed to be affected, and perhaps the peroneal.

In this disease (we speak chiefly of the first species), the pains vary in their degree of intensity; at one time exciting the most piercing cries, and distracted writhings and motions, in the miserable patient; while at another they are more bearable. When at the acmé of their violence, the parts affected are often convulsed, and sometimes various contortions and grimaces are observable. These are to be distinguished from the convulsive twitchings of the muscles with which the diseased nerves communicate, and which are occasioned by irritation from the excessive pain; while the contortions and grimaces are voluntary, being caused by the patient's writhing and twisting from the agony of his torture, and may be pre-

vented by a firm resolution to resist any impulse of shrinking from the attack.

The pain does not always confine itself to the seat of the disease, but darts with the rapidity of lightning to the neighbouring parts, shooting in different directions like radii from a centre. It rarely gives warning of its approach, and often the first sign of an attack, is the patient's starting up in a state little short of phrensy. In this condition, some patients beat the part with violence, or forcibly rub it with some rough substance till excoriation takes place; and, in some instances, they have succeeded in thus diminishing the intensity of the pain.

The pains are more frequent during the day than in the night, probably from there being fewer causes of irritation during the latter season; and they are more frequent during conversation than in silence; and still more so at the time of mastication, when the attacks often succeed each other with such rapidity as to appear like one continued paroxysm, with scarcely an interval of cessation. The eye at times is red, inflamed, and watery, as we sometimes observe in severe tooth-ache; in other cases it is particularly dry; and in some patients a copious flow of saliva succeeds a paroxysm. In general, only one side of the face is affected with this dreadful malady; but, as there are cases recorded in which both sides suffered at the same time, we cannot lay it down as a certain characteristic of the disease. *Fouquet* observed at Montpellier two women who had both cheeks affected at the same time; and *Pujol* knew a lady, who, for several months, had the pain in one cheek, which after a while was free from pain; but the other cheek was immediately attacked in the corresponding place, the pain continuing for two months, and then resuming its former position.

When the disease continues for a great length of time with increasing violence, the patient can neither obtain rest by night nor by day, and his appetite fails. The complaint usually terminates without any apparent cause, leaving the patient for a time to enjoy the comforts of life. But whoever has had one attack may with considerable certainty anticipate another; and, though he is to-day well, and free from all pain, to-morrow's dawn may usher in a renewal of his torment. So varied is the duration of this affection, and so limited is our knowledge of it, that we can assign no determinate or even probable period for its continuance; and, unless a cure is effected, it returns at intervals more or less frequent, and with increased violence, till the great final catastrophe, which, however, it does not seem to accelerate. For, though Dr. *Banisch* is said to have died of it, we can place little reliance on the report; and subsequent cases and observations do not corroborate such a supposition.

This malady is confined to the nervous system, the patient seldom displaying fever or acceleration of the pulse. It is most generally remarked in persons who have an unusual degree of nervous irritability in general, and more especially when this nervous temperament is joined to bilious and gastric disturbance. It is increased by all circumstances which impair the tone of the digestive organs, or by any local irritation; in some cases even by the trifling one of shaving.

A variety of specifics for neuralgia have come in and gone out of fashion. They have generally been medicines of the narcotic and sedative class; as *cicuta*, *bella-donna*, &c. and might have deceived their employers less often than has been the case, had their exhibition been preceded by medicines which act on the alimentary canal, and its collatitious viscera. Indeed the state of the digestive organs is the first thing to be attended to in neuralgia, as in so many other diseases. Mr. *Abernethy* is said to have cured many patients by this alone; and, when it does fail to cure, it never we believe fails to mitigate. We should therefore urge most strongly the strict regulation of the digestive organs in *tic douloureux*. As the local detraction has a sedative operation on excited nerves

nerves, even when plethora is not the cause of the excitation, leeching or cupping should be also resorted to in all severe cases. If the pain continues unabated, belladonna or conium may often be prescribed with advantage; and we give preference to the former, as being more powerful.

Many cases of Neuralgia have been cured by dividing the diseased nerve. Nevertheless it has so often failed entirely, in consequence of the intensity of some nervous fibril which has caused the irritation; its effects have been so little permanent, and the operation itself so painful; that it is of all others the last surgical operation we should undertake. It seems that in neuralgia, as in nervous irritation in general, the irritant being removed, the disease still continues from some internal change having taken place in the nerve itself. It is in such cases that arsenic is a useful remedy. The use of this powerful mineral has however lately been superseded by the carbonate of iron introduced by Mr. Hutchinson: it is given in doses of a half drachm or a drachm twice or three times a-day. It is in this advanced and habitual stage of the disease that electricity sometimes performs a cure.

Genus III. *Clonus*, [i. e. agitation, perturbation; from *κλονεω*, to shake.] Convulsive spasm. Generic characters—Forcible agitation of one or more muscles in sudden and irregular snatches. There are six species.

1. *Clonus singultus*, hiccough: convulsive catch of the respiratory muscles, with sonorous inspiration; iterated at short intervals.

This disease is merely sympathetic of distant irritation. Flatulence of the stomach, disease of the liver, or indeed of any of the viscera contiguous to or situated near the diaphragm, will cause the symptom. It is often found to attend severe operations; and is well known as a fatal indication in mortifications. Otherwise it may sometimes exist for days without injury to the patient.—It is sometimes periodic. *Bonet*, *Sepulchr. lib. iii. Obs. 4.* Sometimes chronic; and has continued three months. *Schenck*, *lib. iii.*—Four years. *Bartholin. Hist. Anat. Cent. ii. hist. 4.*—Twenty-four years. *Alberti, Dissert. Casus singultus chronici. Hall, 1743.* See also *Hunter on Blood*, p. 410.

2. *Clonus sternutatio*, sneezing: irritation of the membrane of the nostrils, producing sudden, violent, and sonorous, expiration through their channel.—At times periodic. *Bresl. Sammlung. 1725. ii. 82. Eph. Nat. Cur. Cent. V. Obs. 19.*—Of long continuance. *Horsii Opp. ii. 298.*—Three hundred times in a paroxysm. *Eph. Nat. Cur. ann. iii. obs. 138.* It is particularly induced by phlogosis of the mucous expansion of the air-passages. Hence its frequency in measles, catarrh, &c.

3. *Clonus palpitatio*, palpitation: irregular and vibratory motion of the heart or arteries. There are three varieties; the most frequent of which is,

α. *P. cordis*, or palpitation of the heart alone.—The palpitation has sometimes been sonorous. *Castell (P. V.) Exercit. et effect. thoracis. Tr. IX. Tolosa, 1616. A Vega, de Arte Med.* So violent as to dislocate the ribs. *Horsii. ii. 137. 139.*—To break them. *Schenck. Obs. 215. ex Fernelio. Victorius, Consil. n. 97.* In like manner the humerus has been dislocated by a convulsion-fit.

The most important circumstance to be understood in regard to palpitation of the heart, is whether it depends on nervous irritation or organic alterations. Its nature, when arising from the former cause, the reader will find discussed under *Dyspepsia*; and, when from the latter, under *Carditis*. The two following varieties appear to answer to the disease we have described under the title of *Arteritis*, p. 246.

β. *P. arteriosa*, of the arteries alone.

γ. *P. complicata*; extending from the heart more or less through the course of the arteries.

4. *Clonus nictitatio*, twinkling of the eye-lids: rapid and vibratory motion of the eye-lids.

5. *Clonus subfultus*, twitching of the tendons: sudden and subfultory elevations of the tendons. This seems to arise from a deficient supply of nervous powers to the muscles, or at least a supply suddenly applied and exhausted. It is found in most cases when the nerves have been much weakened, as after long fatigue, fevers, and towards the approach of death.

6. *Clonus pandiculatio*: transient elongation of the extensor muscles, with deep inspiration and sense of lassitude. Two varieties.

α. *P. maxillarum*, yawning or gaping.

β. *P. artuum*, stretching of the limbs, frequently noted as a symptom in fatigue, hysterics, restlessness, dyspepsia, and the accession of fevers. As an idiopathic affection, acquired chiefly from a habit of idleness.

Genus IV. *Synclonus*, [from *συν*, together, and *clonus*.] General spasm. Generic characters—Tremulous, simultaneous, and chronic, agitation of various muscles, especially when excited by the will. There are four species.

1. *Synclonus tremor*, trembling: simple, tremulous agitation of the head, limbs, or both; mostly on voluntary motion.

2. *Synclonus chorea*, St. Vitus's dance: alternately tremulous and jerking motion of the face, legs, and arms, especially when voluntarily called into action; resembling the grimaces and gestures of buffoons; usually appearing before puberty.

According to *Horslius*, the name of St. Vitus's dance was given to this disease, or more probably to a disease possessing some resemblance to it, in consequence of the cure produced on certain women of disordered mind upon their paying a visit to the chapel of St. Vitus near Ulm, and exercising themselves in dancing from morning to night, or till they became exhausted. He adds, that the disease returned annually, and was annually removed by the same means. But the French give to another faint the honour of exciting or of curing this disease: they call it *Dance de Saint Guy*.

Dr. Hamilton, in his work on Purgative Medicines, gives the following excellent history of this disease. "Chorea Sancti Viti attacks boys and girls indiscriminately; and those chiefly who are of a weak constitution, or whose natural good health and vigour have been impaired by confinement, or by the use of scanty or improper nourishment. It appears most commonly from the eighth to the fourteenth year. I saw it in two young women, who were from sixteen to eighteen years of age. The approaches of chorea are slow. A variable and often a ravenous appetite, loss of usual vivacity and playfulness, a swelling and hardness of the lower belly in most cases, in some a lank and soft belly, and, in general, a constipated state of the bowels, aggravated as the disease advances, and slight irregular involuntary motions of different muscles, particularly of those of the face, which are thought to be the effect of irritation, precede the more violent convulsive motions, which now attract the attention of the friends of the patient. These convulsive motions vary. The muscles of the extremities and of the face, those moving the lower jaw, the head, and the trunk of the body, are at different times; and in different instances, affected by it. In this state the patient does not walk steadily; his gait resembles a jumping or starting; he sometimes cannot walk, and seems palsied; he cannot perform the common and necessary motions with the affected arms. This convulsive motion is more or less violent, and is constant, except during sleep, when, in most instances, it ceases altogether. Although different muscles are sometimes successively convulsed, yet, in general, the muscles affected in the early part of the disease remain so during the course of it. Articulation is now impeded, and is frequently completely suspended. Deglutition is also occasionally performed with difficulty. The eye loses its lustre and intelligence; the countenance is pale, and expressive of vacancy

vacancy and languor. These circumstances give the patient a fatuous appearance. Indeed there is every reason to believe, that, when the complaint has subsisted for some time, fatuity to a certain extent interrupts the exercise of the mental faculties. Fever, such as arises in marasmus, is not a necessary attendant on chorea; nevertheless, in the advanced periods of the disease, flaccidity and wasting of the muscular flesh take place, the consequence of constant irritation, of abating appetite, and impaired digestion, the common attendants of protracted chorea; and which, I doubt not, may, in some instances, although contrary to the opinion that chorea is not fatal, have been the forerunners of death."

In the old practice of antispasmodics and cordials, little good was done for chorea. Since the general promulgation of the grand fact, that, in nine cases out of ten, nervous diseases of all kinds arise from disorders of the abdominal viscera, this disease has been more successfully treated. Full purging is the chief remedy at present. The purges used should be rough and drastic, and should be continued for some time, even when their efficacy is not at first apparent. In chorea, as in neuralgia, where habit only keeps up the malady, medicines capable of powerfully influencing the nervous functions may be used; as, for instance, the arsenical solution.

3. *Synclonus raphania*: spastic contraction of the joints; with trembling and periodical pains. So called by Linnaeus as being supposed by him to be produced by eating the seeds of *Raphania raphanistrum*, the wild radish, or jointed charlock. It is chiefly found in Sweden and the adjoining countries; and has hence been chiefly treated of by Swedish writers. There is a paper upon the subject by Dr. Rothman, in the *Amoenitates Academicæ*, vol. vi. who asserts that it is neither a new disease, nor confined to the Baltic countries. He has traced it, he says, as an affection common to Europe, in the works of various writers up to the year 1596. It seems to depend upon some deleterious vegetable intermixed with the grain employed in making bread: some species of *Lolium* or *Secale* (darnel or rye) have been suspected; but there is more reason (he says) for ascribing it to the *Raphania raphanistrum*. It is sometimes accompanied with cutaneous ulcerations, and extensive exfoliations of the cuticle and cutis.

4. *Synclonus beriberia*: spastic retraction of the knees on walking; trembling and painful stupor of the limbs; sense of formication; hoarse voice.

The beriberia has been found chiefly in the East Indies, and is a species of palsy, in which, according to Bonnius, patients seem to imitate sheep in lifting their legs when they walk. This palsy consists in a partial deprivation of the motion and sensation of the hands and feet, and sometimes of the body. Sagar once saw some sheep, observing a wolf, seized with this spasmodic affection; and they, whether standing still or walking, momentarily retracted their knees, which immediately returned to their natural situation. The cause is generally thought to be exposure to the cold vapours of the night too soon after exercise. Dr. Good supposes that the swallowing of some parasitic plant, or animalcule, in the food or drink, is the cause of it.

The disease is not mortal, except by seizing the muscles of the breast, so as to obstruct respiration and the voice. In the cure, moderate exercise and frictions are useful: the Indians use a semicupium made of water, in which is boiled an aromatic herb called *lagondi*; or, in want of it, camomile and melilot. The affected parts are rubbed well with a mixture of the oils of mace and roses. Bleeding is not required; but, on the contrary, stimulants and tonics are to be used, with an occasional gentle purge. Decoctions of sarsaparilla and guaiacum are also of service.

The term beriberi is still preserved in Ceylon, but applied to a different disease; a peculiar sort of dropsy, commencing with stiffness and oedema of the lower extremities, which shortly spread over the whole body,

producing dyspnoea, vomiting, convulsive motions, and death. The symptoms have been given at some length by Mr. Colhoun, and Mr. Christie, inspector-general of the hospitals in Ceylon. The English forces established at Ceylon are occasionally subject to it. See "Essay on the Diseases incident to Indian Seamen or Lascars on long Voyages, by William Hunter, A. M. Member of the Asiatic Society of Calcutta, &c." In like manner Lord Valentia, in his *Travels*, vol. i. p. 318. "a complaint, as far as I have learnt, peculiar to the island (Ceylon) is the *berri-berri*. It is in fact a dropsy that frequently destroys in a few days."

Order IV. SYSTATICA, [from *συναρτάω*, I collect together.] Diseases affecting fever or all the sensorial powers simultaneously. Irritation or inertness of the mind extending to the muscles or external senses; or of the muscles or external senses extending to the mind. It contains nine genera.

Genus I. *Agrypnia*, [from *α*, priv. and *υπνος*, sleep.] Sleeplessness. There are two species.

1. *Agrypnia entonica*: sleep retarded by an inordinate excitation of the mind to a particular subject; listlessness to surrounding objects.

2. *Agrypnia chronica*: habitual wakefulness; mind tranquil; attention alive to surrounding objects. Most common to advanced age.

Genus II. *Dysphoria*, [from *δύς*, difficulty, and *φορέω*, to bear, or endure.] Restlessness. Generic characters—Troublesome and restless uneasiness of the nerves and muscles; increased sensibility; inability of fixing the attention. There are two species.

1. *Dysphoria simplex*, fidgets: general; and accompanied with a perpetual desire of changing the position.

2. *Dysphoria anxietas*, anxiety: chiefly affecting the præcordia; with depression of spirits, and perpetual desire of locomotion.

All the above symptoms, when not accompanied by the derangement of the system denominated fever, may be referred to some of the numerous forms of dyspeptic malady. *Anxiety* is more particularly referrible to excessive eating, or weakness of the muscular coat of the stomach. The *fidgets* are frequently observed in those who have nothing to do, and seem to be the result of want of exercise for the brain; in consequence of which, its energies are exerted on trifling subjects. On the other hand, *sleeplessness* is a common attendant on the literary character, the over-exertion of the mind keeping up a continual state of irritation in the brain. Hence the sleep is broken, light, and troubled with dreams. For the cure, &c. see *Dyspepsia*, under which head this subject is somewhat copiously discussed.

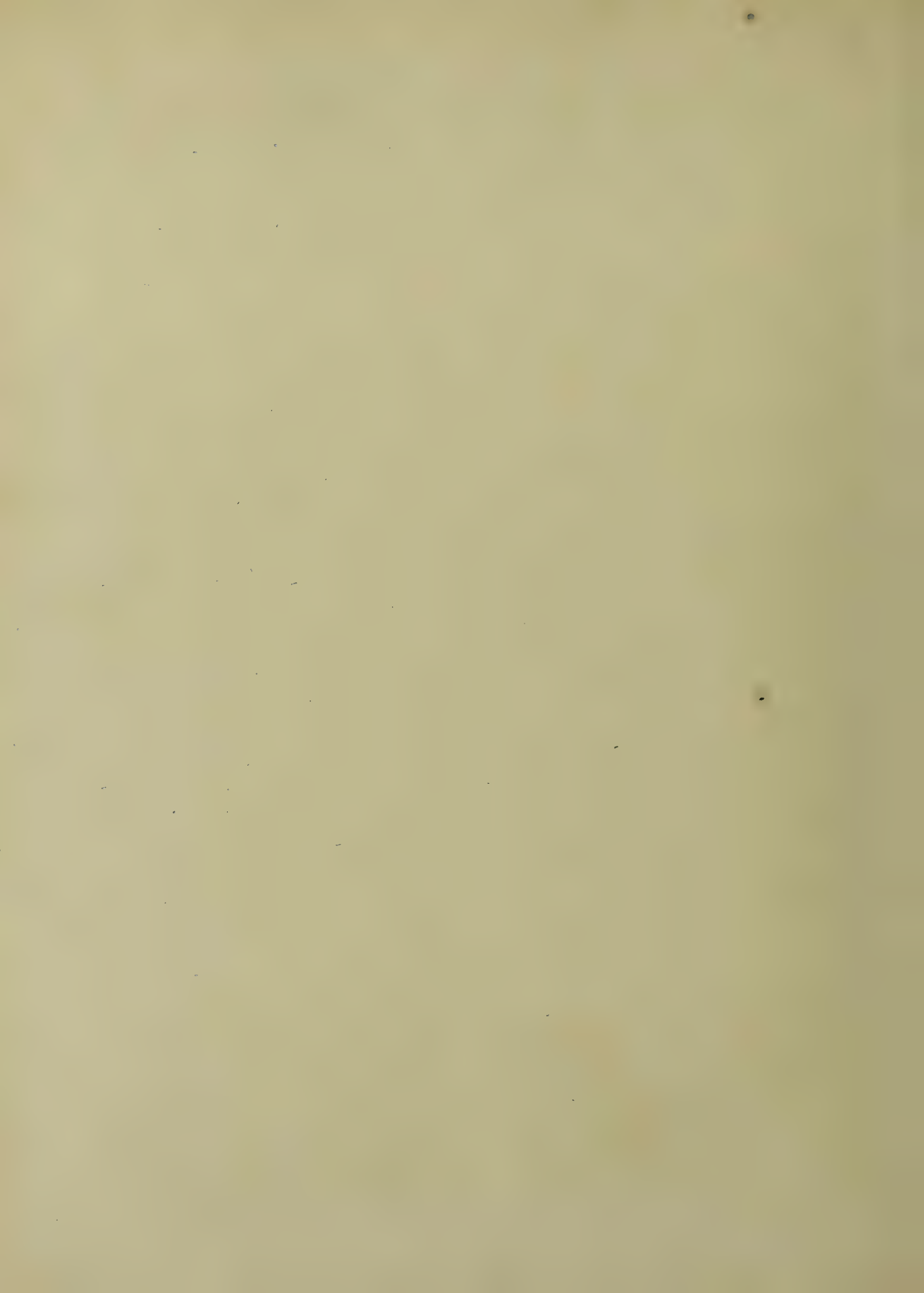
Genus III. *Antipathia*, [from *ἀντί*, against, and *πάθος*, feeling.] Antipathy. Internal and unaccountable horror at the presence of particular objects or subjects; with great external restlessness, or delirium. Two species are noted by Dr. Good.

1. *Antipathia sensilis*: antipathy produced through the medium of the external senses. As, at the sight of a drawn sword in king James I. *Digby* Theatr. Sympathet.—Sound of music. *Eph. Nat. Cur. Dec. I. obs. 134.*—Smell of roses. *Id. Dec. II. ann. x. obs. 8.*—Of strawberries. *Id. ann. v. obs. 214.*—Taste or smell of cheese. *Zucut. Lusat. Frax. admir. lib. iii. Obs. 103. Eph. Nat. Cur. passim.*—Erasmus, though a native of Rotterdam, had such an aversion to fish, that the smell of it gave him a fever.—Ambrose Paré mentions a gentleman who never could see an eel without fainting.—Joseph Scaliger and Peter Abono never could drink milk.—Cardan was particularly disgusted at the sight of eggs.—Uladiſlaus, king of Poland, could not bear to see apples.—Henry III. of France, could never sit in the room with a cat.

2. *Antipathia insensilis*: produced through an unknown medium. Chiefly in the case of cats, at hand, but neither seen, touched, smelt, nor heard.

Genus





Genus IV. *Lyssa*, [that is, madness; probably from *λυω*, to dissolve, because the senses are impaired or melted away.] Madness from the bite of a rabid animal, commonly called hydrophobia. Generic characters—Great restlessness; anxiety; hurry of mind; horror; and constriction of the muscles of the chest; supervening to the bite of a rabid animal: preceded by a return of pain and inflammation in the bitten part. There are two species.

1. *Lyssa felina*, feline madness: the paroxysm periodical, and returning with the full moon; produced by the bite of an enraged cat. *Anxietas à morsu felis iratæ*. *Morgagn. Ep. lxi. 14.*

In the case here referred to, the paroxysm took place four days after the bite: there was great anxiety of the præcordia, but no water-dread. Local and general bleedings were useless; frequent repetition of the warm-bath afforded relief; but it only yielded to an ephedra with copious sweat. It returned with the full moon for two years: the bitten part first becoming highly irritable; and the general symptoms succeeding, which were now relieved by bleeding. After this period it returned with every fourth full moon for two years more. See another case, which terminated fatally on the first paroxysm, in the *Trans. Med. Soc. of London*, vol. i. p. 78.

2. *Lyssa canina*, canine madness: (*Pantophobia*, *Cal. Aur.* *Rabies canina*, *Boerhaave*. *Hydrophobia*, *Souv. Linn. Sag. Cull. &c.*) The constriction extending to the muscles of deglutition, which are violently convulsed at the appearance or idea of liquids; produced by the bite of a rabid dog, and fatal on the first paroxysm.

The term *hydrophobia*, which has been so generally applied to the *Lyssa canina*, has been deservedly reprobated, because the "dread of water," the literal meaning of the word, is not a pathognomonic mark of the disease. The older writers used the terms *aërophobia*, or a "dread of air," and *pantophobia*, or a "fear of all things," as appropriate names for the disease, because the impression of cold air sometimes excites terror, and the disorder is marked by a singular degree of general timidity and distrust. The term *hydrophobia*, being erroneously applied to the rabies of the dog, has induced a supposition that no dog is rabid while he continues to drink; whereas he is constantly endeavouring to quench his thirst in that disease. And again, the appellation of *madness* has led to a belief that violence and fury are characteristic of rabies in the dog; but, though he is irritable and peevish, there is nothing of wildness in his disposition. In consequence of this mistake, dogs have been allowed to go about, fondled, and even slept with (see *Mem. of Swedish Acad.* 1777), in a rabid state.

Aristotle is the first writer who expressly mentions this disease. He says that all animals, *except man*, are infected by the bite of a mad dog, and destroyed by it. This imperfect state of knowledge respecting the malady, is a proof that it was a matter of recent observation; for, although several persons might be bitten without suffering the disease, and, from the length of time which commonly elapses between the infliction of the bite and the appearance of the symptoms, several cases might occur before it was referred to its true source; yet no very long time would be requisite to clear up these doubtful points. Accordingly, we find subsequent writers treating of the disease in a familiar manner. Plutarch affirms that the hydrophobia was first seen at Rome in the days of *Aclepiades*; after whose time, we meet with frequent notices of this disease in the works of the ancients.

The symptoms of *Lyssa*, as they appear in the dog, have been inserted under the article *HYDROPHOBIA*, in our 20th volume. We proceed, therefore, to discuss the nature and origin of the disease. It is known, that animals of the dog-kind, including the wolf and the fox, are most frequently the subjects of *Lyssa*; and most writers have maintained that, although it may be received and propagated by other animals, yet it always originates with some of the canine race. It is likewise said, that the ge-

neration of *Lyssa* is confined to male dogs. Like the origin of many diseases emphatically called specific, as small-pox, syphilis, and itch, the origin of this in the simple inflammatory or irritative processes is unknown; yet we cannot but believe, that to such processes all specifics owe their first production. However this may be, it is a fact, that, at certain periods of the year, dogs are more prone to *Lyssa* than at others. The disease, however, has by no means the character of an endemic. It seems to require a very rare and peculiar combination of circumstances for its spontaneous development, though, when once formed, it spreads with the most alarming rapidity, in consequence of its infectious nature. Various measures have been stated for the prevention of hydrophobia in dogs; as vaccination, worming, &c. but, we believe, with no success. Of the exciting causes of this disease we know nothing. Great heat has been asserted as one cause; though it must be recollected, that the disease is less frequent in the tropical climates than with us. *Boerhaave* also enumerates "a very hot climate, or one exposed to the extremes of heat and cold; feeding upon putrid stinking maggoty flesh; want of water; worms bred in the kidneys; intestines, brain, or cavities of the nose." But the influence of these circumstances in producing the disease is not established by a sufficient number of observations.

All domestic animals, birds as well as beasts, are susceptible of the poison of the rabid dog. We do not find that there is any race of animals exempted from its effects. But whether every animal labouring under the disease is capable of infecting others, or whether this power is confined to a few only, we are yet to learn. *Boerhaave* affirms that the disease has been communicated by infection to others by dogs, cats, wolves, foxes, horses, asses, mules, swine, apes, cocks of the poultry breed, and men, when affected with rabies, (*Aph.* 1132.) and the cow has also been said to propagate it. *Van Swieten* has stated some instances, from old authors, of hydrophobia occasioned by the beak of an enraged cock wounding the hand and arm. But there is little doubt that, in such cases, the spasmodic and fatal disease, which ensued, was *tetanus*. It is certain, however, that not only animals of the canine species, but cats, have produced hydrophobia in the human species by their bite; and a supposed difference of symptoms has led *Dr. Good*, as we have seen, to separate *Lyssa* into two species.

It seems very natural to suppose, that every animal susceptible of the disease had the power of communicating it, provided their natural habits led them to bite and tear with their teeth such animals as came in their way, while in an enraged state. With respect to men under the influence of hydrophobia, although the popular notion of their general disposition to bite those around them is erroneous, yet there are instances on record in which hydrophobic patients did bite some of their attendants, but no ill consequences have been known to follow. From this, however, as *Dr. John Hunter* justly remarks, we can draw no positive inference; for it is but a small proportion (about one in sixteen); of such persons as are bit by dogs undoubtedly mad, who are infected with the poison. The experiments, however, of *Mr. Cline*, throw great doubt on the infectious qualities of the saliva of the human subject. He took particular pains in inserting this secretion, while fresh, into a dog, three rabbits, and several fowls: "but in none of these instances was there the least appearance of the disorder at the expiration of three months." *Mr. Astley Cooper*, on the other hand, inoculated a dog, a pig, a fowl, and a rabbit, with the saliva of a dog, which had recently died of rabies, by inserting, from the point of a lancet, between two and three drops under the skin of the inner part of the thigh of each. The dog and fowl were kept confined for nine weeks, and the pig seven, but without any appearances of hydrophobia. The dog afterwards became the property of a gentleman, who kept him nearly twelve months, and he

had never any marks of the disease. The rabbit was accidentally killed on the fourth day from the experiment. But the experiments of Majendie led to a result precisely opposite.

With regard to the activity of the poison of the rabid dog, the facts which have been collected have been so vaguely stated, that the inferences are quite inconclusive. Among the older writers, indeed, there was much credulity, and they have transmitted to us many fabulous histories in regard to the operation of the rabid virus. "Scarce any poison known (says Hillary, relying upon the truth of those tales) is so infectious, or so easily and readily communicated by so many and various ways, as this of a mad dog is: for the slightest bite, only tearing the skin, without drawing blood; or the smallest quantity of the saliva of the mad animal, either fresh or dried for some time, taken upon the tongue or lips; or rending a person's clothes and leaving the saliva on them to dry, has produced this disease; as a woman had her coat torn by a mad dog, which she a considerable time after sewed up, and bit off the thread with her teeth, and some time after died rabid from biting off that thread. (Hildanus Obs. Chir.) Also a man only kissing his children to take his leave of them when he had the rabies upon him, they all soon after died rabid. (Palmarius de Morb. Contag.) Kissing a favourite dog that was mad had the same effect, &c. and produced this most fatal disease." See Hamilton, vol. i. p. 98.

In the London Medical Repository for April 1814, are two cases, from which (if we could be certain that the disease was *Lyssa*) it would appear probable that a dog, free from any characteristic mark of hydrophobia, and apparently in the highest state of health, may communicate by its bite this most dreadful malady. One of the cases was that of a dog, apparently ailing nothing, who had repeatedly licked a woman's chopped hands. The other of a dog, who afterwards continued in health, and remained in the family it belonged to, having bitten a boy severely in order to escape, when it was teased by that and other boys. This last case is so very remarkable, that we cannot refrain from giving it at length. It is related by Mr. Parkinson, surgeon, of Hoxton-square.

"The subject of this case was a boy, about ten years of age. He came to me, accompanied by four other boys older than himself, he having been bitten by a dog. The canine teeth had passed quite through between the metacarpal bones of the first and middle finger, and of the ring and little finger; the skin of the back of the hand and of the fingers was also torn in several places. By inquiry of the boy himself, apart from his companions, I learnt, that, as they were going along a rather narrow walk, one of the boys cried out, 'There he is!' meaning a dog which they had been in the habit of teasing; that, as they were between him and his home, they ranged themselves across the walk to stop him; and that the dog, after making one unsuccessful attempt, made a push between him and the wall; which he endeavouring to prevent by putting out his hand, the dog seized it, and then ran by and gained his home. As obtaining correct information was here of so much importance, I examined all the other boys separately, who all confirmed the account of the unfortunate boy, and were all satisfied that it was the same dog that they had been accustomed to tease. Discovering no circumstance whatever which would warrant a suspicion of the bite having been inflicted otherwise than defensively, I washed the wounds with spirits of turpentine, and dressed them with a terebinthinate liniment. Still anxious as to the state of the dog, I made additional inquiry respecting it; when I obtained every assurance of the dog being in perfect health.

"The wounds were dressed with red precipitate and a terebinthinate ointment, and healed in about five days. But, at nearly three weeks from the infliction of the bite, I was sent for to the boy, he having had some slight feverishness the night before, which was rather increased.

My son accompanied me, and we soon discovered that the dreadful malady was established. Ignorant of any measures that could be relied on, and as Pyrexia, with evident inflammation of the tonsils, existed, we agreed on the experiment of taking away blood, which was done to the quantity of six or seven ounces, by which a slight degree of faintness was produced, without any apparent amendment. The assistance of Dr. Yellowly was now requested, and immediately obtained; when, it being considered that no medicine had manifested any remedial powers in this disease, it was agreed to make trial of the effects of lead, and to endeavour to moderate the more urgent spasms by the employment of henbane. The experiment was fully made, the superacetate of lead and the extract of hyosciamus were had recourse to, but without the least advantage; the child, after suffering from every decided symptom of hydrophobia, being seized with convulsions so violent as to require two men to retain him in the bed; to which succeeded a state of quiet insensibility, lasting about half an hour, and terminating in his death, which took place on the third day from the attack.

"After this fatal termination, the dog, which had inflicted the bite, again became the subject of inquiry. Dr. Yellowly and myself immediately, therefore, went to its master, who regretted very feelingly the sad catastrophe, but at the same time said that he doubted how it could be attributed to his dog; since, although he had reason to believe, from the provocation the boys were perpetually employing, that he might have inflicted the bite; yet, as we should see, he did not appear to be in a state which would have enabled him to communicate so dreadful a malady. The dog, a fine healthy spaniel, now rushed in, and flew on his master's knees, licking his face and mouth with much fondness; his master permitting him thus to manifest his affection for several minutes, for the purpose of evincing his reliance on the healthiness of the dog. I then again questioned the other boys in the most particular manner, and found them all agreeing in the dog which we had just seen, and the dog which had inflicted the bite, being the same. Not satisfied even with this, I watched the dog during its continuance in the neighbourhood, which was for at least two years, without seeing reason to suspect it of a disposition to injure any one. Within these last five days I have repeated my inquiries, and have learnt that the dog was well a few months ago.—J. P. Feb. 1814."

According to the relater of a case quoted by Dr. Hamilton, the disease, which took place on the eighth day, and was fatal on the eleventh, arose from contact only of the rabid saliva, without any injury done to the person. The same author says, "A young woman had her apron torn and flayed by a mad dog leaping on her, and attempting to bite. Fortunately she received no other injury from him, by the timely assistance offered, and by the loose part of her clothing which he laid hold of. But imprudently, and without proper reflection, she began to mend the rent in her apron before the part was either washed or well dried; and as imprudently, or through habit, instead of cutting the thread with scissors, bit it off with her teeth. Lo, what followed! In a few weeks she was seized with hydrophobia, which proved fatal." There is good reason to believe, however, that there must have been some slight scratch, unperceived by the patient, in the first of Hamilton's cases, through which the virus made its entrance; and, in the second, it of course found its way into the constitution through the absorbents of the mouth. After all, these astonishing accounts are perhaps for the most part false; for an excessive fear of a disease often leads to extravagant assumptions as to its activity; as we know, from the caution which some old popular writers evinced, that we should not drink out of the same cup, use the same towel, &c. as that which has been used by a patient of *Lues*.

The part of the body which is bitten seems to have some influence on the probability of the attack. A bite in the

the face is said to be most generally followed by the disease; which might seem to imply, that parts much supplied with veins most rapidly propagated *lyssa*. A bite on the hands, however, is equally formidable; so that we naturally conclude, that the exposed parts of the body suffer more readily from the bite than the covered parts; because, in the latter, the clothes rub off part of the virus from the teeth before they penetrate the skin. Some have supposed, that, if a gush of blood follows immediately on the bite, the chances of exemption are in favour of the patient; but, in Brera's *Memoria per la Cura dell' Idrofobia*, four cases are related in which this occurrence happened, and nevertheless the patients died.

It is a fortunate circumstance, that men are less disposed to *lyssa* than dogs; and of the latter scarcely one escaping, while, of the former, it is computed that only one in sixteen, who have been bitten, contracts the disease.

The wound inflicted by the bite of a rabid animal has nothing peculiar in its appearance, and heals as readily as the bite of an animal that is not rabid. From the time of the bite until the period when the symptoms appear, there is no derangement of health, nor any perceptible change in the constitution, provided the person bitten be not under the influence of fear. The interval between the infection and the commencement of the disease varies considerably in different instances: the most common period appears to be about forty days or six weeks. Dr. Hamilton draws the following conclusions, as to the interval between the bite and the occurrence of the disease, from a table of 131 cases. Only three took the disease before the 18th day, none before the 11th—from the 18th to the 30th, seventeen were seized: sixty-three began to be ill from 30 to 59 days after the bite; twenty-three were attacked from two to three months inclusive; nine from three to four months; two at five months; one at five months and eleven days; one at six months; one at seven months; two at eight months; one between eight and nine months; two at nine months; one at eleven months; one at fourteen months; two at eighteen months; and one at nineteen months. The last-mentioned interval is, he thinks, the longest to which any credit can be given. On the other hand, a case is related by Dr. Bardsley of Manchester, which proved fatal, as is usual; and every inquiry respecting which corroborated the patient's repeated assertion, "that he had never suffered the least injury from any animal, except the bite, inflicted *twelve years since*, by an apparently-mad dog." (*Memoirs of the Lit. and Phil. Soc. of Manchester*, vol. iv. p. 421.) In this instance, the nature of the disease was perfectly clear, and the evidence as to the bite not less satisfactory.

At an uncertain time, then, after the infliction of the bite, the patient feels a degree of pain, or uneasy sensation, in the bitten part, which is sometimes compared to a scorching by heat, is sometimes attended with itching, and sometimes supposed to be rheumatic. This pain, when the bite, as is most frequent, is in the hand, spreads up the outside of the arm to the shoulder (not affecting the axilla) and the neck. In some cases the cicatrix left by the bite is said to become inflamed, and even to discharge. These pains are soon succeeded by a general depression of spirits, and especially a sense of undefinable listlessness and anxiety. Sometimes a general rigour or chill occurs, as in the commencement of a fever. The night is passed in the same restless state, without sleep. The appetite begins to fail, and some thirst is present. And now the peculiar symptom which gives the disease its name, the *dread of liquids*, is discovered, often accidentally, on attempting to take drink; as the liquid approaches the lips, a sudden convulsive sob, or catch in the breath, with a momentary sensation of choking, takes place, which is renewed at every attempt. As the disease advances, this attempt is not thought of without horror, and the very

idea excites these spasmodic fits of choking in the throat, and catching of the breath.

This dread of liquids is, as we have before stated, not always present, nor is its presence a certain sign of the disease; and in dogs and other animals is so far from being general, that they often swim through rivers, and drink copiously. The cause of this symptom, in man, has engaged the attention of many pathologists. It can only be referred to two causes: first, an actual experience of difficulty of swallowing, which renders the patient fearful to attempt an action which gives him so much pain; or, on the other hand, a dread of the water itself from some fearful association connected with it, an association, as it would seem, quite unconnected with the will. For our own parts, we cannot conceive the hydrophobia to arise from experience of the difficulty of swallowing, because in the most violent cases no difficulty of swallowing food attends; because also the symptom often comes on suddenly, on the sight of water, before any difficulty has been experienced; consequently before the patient can have had any experience on the matter. Moreover, a stream of air, a flash of light, nay the reflection of light from a looking-glass, has sometimes filled the patient with an equally severe emotion of horror as water has; and often again, when the sight of water was painful, wine has been freely drunk. It is not, however, an easy task to explain how the hallucination of mind in *lyssa* should be particularly directed to water. It may be that the nervous system, excited to the highest degree, acknowledges, with a quickness and intensity amounting to pain, those undulating motions which are so peculiarly manifested in almost all the natural phenomena which impress our nerves. Hence the undulating motion of a candle excites uneasiness; the sight of water excites the recollection (unacknowledged by the will) of the roaring of the sea, the dizzy whirl of the current, or perhaps of the danger to which we are often exposed on this element. That on some occasions wine has been swallowed when water could not, may arise from the different recollections to which wine gives rise. That it is the sight of water, and not the difficulty of swallowing it, that produces hydrophobia, is corroborated by this; that a child requested his father to put some tea in a tea-pot, so that he might be able to drink it out of the spout, *without the pain of looking at it*.

But the dread of swallowing liquids, although the most singular symptom of the disease, constitutes but a small part of this distressing malady. The state of disorder into which the nervous system is thrown, is evinced by the extreme irritability of the whole frame, mind and body, and the excessive susceptibility to all impressions. Hence the constant watching and inquietude; and the sudden fits of anger and impatience, arising from the most trifling causes, as the patient himself readily allows, and even wonders at, and apologizes for, in the succeeding moments of composure. Hence also the distress, and even the recurrence of his spasms, occasioned often by the slightest motion of the air, as from opening the door, from the approach of any person, or even of a person's hand, in front of him; or even by the buzzing of a fly. This morbid excitability of the nervous system is farther manifested in the extreme timidity and suspicion of the patient, in the imaginary objects of terror and uneasiness which the senses frequently represent to him, and in the occasional delirium and incoherence of ideas, from which, however, he easily collects himself.

There are some other circumstances belonging to the disease, of less note, which remain to be mentioned. One of these is a constant collection of a thick ropy tenacious saliva in the fauces, which is often productive of extreme distress; for, as the miserable sufferer is unable to make the smallest attempt to swallow it, without exciting the convulsive choking, he spits it out incessantly, and with great vehemence and difficulty, often cautioning the bystanders to keep out of the way. The pulse in the beginning

gining is not quick, nor is the skin hot; and there is none of the muscular debility so remarkable in fever; but, as the disease proceeds, there is some feverish heat, and the pulse becomes quick; varying, however, exceedingly as slight causes of irritation influence the patient: as death approaches, it usually becomes very quick and tremulous. Sickness and vomiting often occur, when a little phlegm, tinged with brown or yellow bile, is brought up. There is often a sense of great oppression and stricture about the breast, or what has been called anxiety about the præcordia; and which is probably an affection of the heart; for it is accompanied with sighing and deep irregular inspirations, and the patients find some relief from motion, as running and walking, which show the lungs not to be the seat of the oppression. The countenance is generally sorrowful, and often expressive of a great degree of horror and distress.

There is a considerable variety in the symptoms in different constitutions: even the hydrophobia, or dread of swallowing liquids, occurs in very different degrees. But there is no part of the disease that admits of greater variation than the degree of mental derangement, which in some does not amount to more than extreme irritability and impatience; in others to muttering and incoherent talking, yet giving rational answers when questions are asked; and in a few it rises into short fits of the most violent rage and fury, in which the patients bite and tear themselves and every thing near them. In general they manifest no disposition to mischief; yet popular prejudice is still on the watch for the "barking and biting like a dog," as the disease advances. In a case related by Dr. Marcet, the bystanders confidently expected the symptom of *barking*, which they "thought at last to have clearly discovered in the peculiar noise which he made in breathing." Dr. Wavell, speaking of this sort of respiration, says, "the noise he made in drawing air into his lungs was undoubtedly peculiar; but neither in my opinion, nor in that of any other medical gentlemen who attended him, did it bear the least resemblance to the barking of a dog." (Med. Records and Researches, p. 151.) Were this notion of the canine metamorphosis, which the disease has been supposed to effect in man, merely speculative, it would be less important to confute it; but it is to be lamented, that the practical result of it, in the cruel and murderous plan of suffocating the patient, has been followed, both in France and in this country, within the last twenty years of the eighteenth century. See Hamilton on Hydrophobia, vol. ii. p. 140. and App. p. xxviii.

The duration of life, after the commencement of the symptoms of hydrophobia, has been on an average about *four days*; it varies from thirty-six hours to five, six, or many more, days. The termination of life is likewise various in different instances: death is often very sudden, being produced by one of the convulsive attacks, such as occur on the attempts to drink; at other times, more general convulsions carry off the patient; while in other instances, again, the strength sinks gradually, and the patient dies comatose.

Dissection of hydrophobic cases displays inflammation of the spinal marrow, and, in a slight degree, of the membranes of the brain. The stomach, especially at its cardinal extremity, and also at the œsophagus, is usually found in the same state. The observance of redness and other marks of phlogosis on the mucous membrane of the bronchiæ has induced Trollet to infer, that this membrane is the seat of hydrophobia, and that the infectious matter is a morbid secretion from it: but this opinion, like every other on the etiology of *Lyssa*, rests on very slight grounds. Some other inconsiderable changes have been observed; but they seem to have been mostly adventitious.

From the peculiar nature of the symptoms above detailed, it might be conceived that no difficulty could occur, in distinguishing *rabies canina* from every other

disease to which the human body is liable. But this is very far from being the case; for many histories are related, in which, although the disease was the consequence of a bite, it partook more of the nature of tetanus; and others are detailed, in which no bite had preceded the disease, or had occurred at so distant a period as to render its influence in exciting the disease extremely questionable. It must be observed, however, that the *tetanic* spasms generally commence within a few days after the injury, or in a much shorter period than those of rabies; that the jaw is commonly rigidly locked in tetanus, and the muscles of the neck and back most particularly affected; that the spasms are of a more fixed or "tonic" species, (in the language of Cullen,) consisting of rigid and long-continued contraction, rather than of short convulsive action, and are relieved rather by remission of their violence than by a complete solution of the spasm; that there is less feverishness, quickness of pulse, and thirst, in tetanus; and, above all, that there is little of that extreme mobility of feeling, and anxious, impatient, and apprehensive, state of mind, which marks the hydrophobic condition.

It must be observed, that many instances are recorded of patients who have actually frightened themselves into a state very closely resembling hydrophobia. Indeed, Dr. Percival has remarked, that it has sometimes been brought on by the imagination alone; and Dr. Ferriar says, "I met with an instance of this kind lately, in which it was very difficult to prevent a person from rendering himself completely hydrophobic. Himself and his wife had been bitten by a dog which they supposed to be mad. The woman thought herself well; but the man, a meagre hypochondriacal subject, fancied that he had uneasiness in his throat, and that he could hardly swallow any thing. When he first applied to me, a medical friend who was present, asked him whether he had any sensation of heat at the pit of the stomach. He answered in the negative, doubtfully; but, next day I found him in bed, complaining of heat in the pit of the stomach, difficulty of swallowing, tremors, and confusion in the head. He continued to persuade himself he was ill of rabies, and confined himself to bed, expecting death for near a fortnight. At last I remarked to him, that persons who were attacked by rabies never survived more than six days; this drew him out of bed, and he began to walk about. By a little indulgence of his fears, this might have been converted into a very clear case of spontaneous hydrophobia, and the patient would probably have died." We are inclined to doubt the fatality of this spontaneous hydrophobia, which is, in fact, nothing more than a nervous disorder.

As to the *treatment* of *lyssa*, we have but one remark to make; viz. that the bitten part must be cut out as soon as possible; for on that practice only can we rely. As to the time at which it is expedient to perform this operation, little can be said with certainty. Of course it is of no use when hydrophobic symptoms are manifest. Often it is of use before that period; and so irregular are the cases of the absorption of animal poisons, that we are justified in cutting out the part at any period before the coming-on of the symptoms. With regard to the operation itself, we should first ascertain the extent of the wound, and the direction it has taken; and, as a precautionary measure, the puncture may be stuffed full of lint. The part is to be dried from blood; and the incision carried completely under the punctured or lacerated wound. The excised piece must then be examined, lest the knife should not have completely taken away the whole of the lacerated cavity. Should more than one wound be made, they can be cut out separately, using the precaution to take a clean knife for each cut, lest that before used, having touched the part imbued with the canine virus, should again inoculate the sufferer with the disease. As to prophylactics for hydrophobia, we entirely disbelieve their existence; and of remedies not one

is yet known that has been able to arrest the progress of this terrible disease. Majendie has made numerous experiments, even by injecting the most famous drugs into the veins, (a much surer means than giving them by the mouth;) and the result of these experiments shows convincingly, that no known substance has the least control over the disease; and that the discovery of a specific is scarcely even to be expected. But the same distinguished pathologist has made one experiment, which seems to show that there may yet be discovered a more direct method of relieving hydrophobia than any yet adopted. The experiment consisted in emptying a dog of a large portion of his blood, and throwing in warm water instead of it. The dog was effectually rendered quiet by it; but, in consequence of the proportion of water being over great, effusion took place in the lungs, and the animal died.

It may be asked, Are we then to give up to certain destruction every patient who is seized with symptoms of hydrophobia? We reply, No; but the hope of cure is so small, that no one bitten by a mad dog should be allowed to refuse the excision of the bitten part: the most urgent remonstrances, nay, when it can be done, force should be employed, to prevent this fatal procrastination. When the disease is once formed, the exhibition of mercury till salivation is induced, with the belladonna in doses so large and so often repeated as to produce the most alarming effects on the system, seems to afford the best chance of success. Four patients thus treated by Dr. Brera recovered. Bleeding, the warm and cold bath, mercury, blustering, belladonna, opium, the scutellaria, the *Alisma plantago*, chlorine, cantharides, arsenic, with a host of drugs so inert that they could under no circumstances have influenced the human frame in the slightest degree, have been lauded, from the recovery of individual cases, as cures for Lyssa. The last remedy which has reached us is the oxygenated muriatic acid, which Dr. Previali of Pavia has prescribed with success, (as he says,) where the symptoms were advanced, in a liquid form, from a drachm to a drachm and a half daily, in citron water, or syrup of citron. These trials were made so recently as the month of January, 1822.

Genus V. *Cephalæa*, [from κεφαλή, the head.] Head-ache. Generic characters—Aching pain in the head; intolerance of light and sound; difficulty of bending the mind to mental operations. There are five species, besides varieties.

1. *Cephalæa gravans*, stupid head-ache: pain obtuse; with a sense of heaviness extending over the whole head; sometimes intermittent.
2. *Cephalæa intensa*, chronic head-ache: pain vehement, with a sense of tension over the whole head; periodic; often chronic.
3. *Cephalæa hemicrania*, megrim: pain vehement; confined to the forehead, or one side of the head; often periodic.
4. *Cephalæa pulsatilis*: pain pulsatory, chiefly at the temples; often with sleeplessness and a sense of drumming in the ears.
5. *Cephalæa spasmodica*, sick head-ache: pain partial, spasmodic; often shifting from one portion of the head to another; chiefly commencing in the morning; with sickness and faintness.

All these species are mere symptoms of other diseases: chiefly plethora and indigestion.

Genus VI. *Dinus*, [i. e. whirling round.] Dizziness. Generic characters—Apparent giration of objects, with hebetude of the sensorial powers. Three species.

1. *Dinus vertigo*, swimming of the head: dizziness; sense of undulation in the ground; unfitness for mental exertion.
2. *Dinus illusorius*: dizziness, with dimness of sight,

and imaginary objects before the external senses. Two varieties.

α. *Phantasmatum*: ocular spectres in the semblance of net-work, dark spots, dazzling or rainbow hues before the eyes; murmuring or whizzing in the ears.

β. *Mutationis*: real objects changed in their natural qualities, by error of form, of motion, or of number.

3. *Dinus scotoma*, nervous head-ache: dizziness with blindness and tendency to swoon; often succeeded by head-ache.

These species are mere symptoms of plethora or dyspepsia.

Genus VII. *Syncope*, [from συνκρίω, to cut down.] Fainting. Generic characters—Motion of the heart and lungs feeble or imperceptible; diminished sensibility, inability of utterance. Five species.

1. *Syncope cardiaca*: returning at irregular periods: occasional palpitation of the heart during the intervals. Divided into,

α. *Plethorica*: from surcharge of the cardiac or neighbouring blood-vessels.

β. *Vitiosa*: from polypous concretions, or other morbid affection of the cardiac or neighbouring blood-vessels. See *Carditis*.

2. *Syncope inanitionis*: accompanied with a sense of inanition, and extreme general debility. Two varieties.

α. *A fame*; from hunger or long fasting.

β. *A fluxu*; from sudden and immoderate flux, whether of blood, pus, or any other fluid.

3. *Syncope doloris*: preceded by pain or irritation of body.

α. *Interna*; from internal pain or irritation; produced by poisons, worms, or other similar causes.

β. *Externa*; from external pain or irritation; produced by wounds, or other accidents or injuries.

4. *Syncope pathematica*: preceded by the exercise of some sudden and overwhelming passion.

5. *Syncope metastatica*: accompanied with retrocession or repulsion of gout, exanthems, or other diseases.

Fainting, or swooning, is a symptom in so many disorders that it cannot be necessary to treat it as a separate disease.

Genus VIII. *Syspasia*, [from συσπᾶω, to draw or contract.] Convulsions. Generic characters—Clonic spasm; diminished sensibility; inability of utterance. Three species, and many varieties.

1. *Syspasia convulsio*, convulsion-fit: muscular agitation violent; teeth gnashing; hands forcibly clenched; transient.

In assigning convulsions a place in nosology, we are evidently and confessedly describing a symptom of a great many other diseases, and a mere symptom in all; since the muscular agitation which constitutes convulsion forms no part of the disease, and indeed seems to be one of those salutary processes, which, though depending on disorder, tend nevertheless to remove it. The diseases in which this symptom is most found are teething, worms, and other intestinal irritations; affections of the kidneys, parturition, and labour; various fevers, wounds of the head and other organs. Dr. Good makes five varieties.

α. *C. erratica*; shifting irregularly from one part to another.

β. *C. universalis*; attacking every part simultaneously; occasionally protracted or habitual.

γ. *C. intermittens*; returning after intervals, regular or irregular.

δ. *C. ejulans*; accompanied with shrieks or yellings, but without pain.

ε. *C. infantium*; occurring in infancy; sensibility nearly suspended; features of the face for the most part hideously distorted.

In all these cases we must endeavour to discover the irritated nerves, and excite them to a new kind of action. In the last variety, the infantile convulsion, we should look chiefly to the teeth and bowels. If any irritation seems likely to exist about the former parts, they must be freely lanced; if about the latter, purgatives must be given. If, on the other hand, pain and dizziness of the head be very severe, leeches may be applied. The warm-bath is the first thing to be had recourse to when a child has a convulsion-fit; and the attendants should be cautious not to forcibly open the clenched hands, or in any other way attempt to counteract the muscular motions, since resistance merely increases their exertion.

2. *Sypspasia hysterica*, hysterics: convulsive struggling, alternately remitting and exacerbating; rumbling in the bowels; sense of suffocation; drowsiness; urine copious and limpid; temper fickle. Two varieties.

α. *H. atonica*; from debility of constitution; without any evident proximate cause.

β. *H. irritata*; from sudden emotion of the mind, or irritation of the stomach or bowels.

In tracing the nervous diseases which grow out of dyspeptic ailments, we have been very full and explicit on that form of hysteria which has its origin in gastric irritation, and especially that which is generally called the *irregular* forms of hysteria. Hysteria, as it arises from uterine irritation, will now be discussed; and this for the purpose of introducing the symptoms of an hysterical fit. The treatment will in no means deviate from that before laid down. The state of the uterine system will be of course looked to; but so great is the sympathy between the uterine and assimilating organs, that irritation in the former generally impairs the functions of the latter; consequently the general plan of treatment cannot be different.

The paroxysm or fit of hysteria is commonly preceded by a sense of lassitude, coldness of the feet, and a copious discharge of pale limpid urine: often by pain in the head, loins, or stomach; which latter organ, as the fits commence, is sometimes affected with vomiting. The paroxysms commonly begin by some pain and fullness felt in the left side of the belly. From this a ball seems to move, with a grumbling noise, into the other parts of the belly; and, making as it were various convolutions there, seems to move into the stomach, and more distinctly still rises up to the top of the gullet, where it remains for some time, and by its pressure upon the larynx gives a sense of suffocation. There is occasionally much difficulty of breathing, and a palpitation of the heart at the onset. By the time the disease has proceeded thus far, the patient is affected with a stupor and insensibility, while at the same time the body is agitated with various convulsions: the trunk of the body is writhed to and fro, and the limbs are variously agitated; commonly the convulsive motion of one arm and hand is that of beating with the closed fist upon the breast very violently and repeatedly. The whole of the belly, and particularly the navel, is often drawn strongly inwards; sometimes there is a violent working, or alternate rising and falling, of the belly, attended with considerable noise. The sphincter ani, during the fit, is sometimes so firmly constricted as not to admit a small clyster-pipe; and there is at the same time an entire suppression of urine. This state continues for some time, with some remissions and renewals of the convulsive motions; but they at length cease, leaving the patient in a stupid and seemingly sleeping state. More or less suddenly, and frequently with repeated sighing and sobbing, together with a murmuring noise in the belly, the patient returns to the exercise of sense and motion, but generally without any recollection of the several circumstances that had taken place during the fit.

Such fits are very liable to recur from time to time, and during the intervals the patients are subject to in-

voluntary motions, to fits of laughing and crying, with sudden transitions from one to the other; while sometimes false perceptions and some degree of delirium also occur, as well as all the various incongruities of the disease to which we alluded above. The preceding account is that of the most common form of the *hysterical paroxysm*; but this is considerably varied in different persons, and even in the same person at different times. It differs chiefly by having more or fewer of the circumstances above mentioned, by the greater or less degree of violence of these, and by the different duration of the whole fit. See Cullen, First Lines, par. 1514.

The hysterical paroxysm scarcely resembles any other affection of the body, except occasionally the paroxysm of *epilepsy*; but in epilepsy, the convulsive motions are generally much more violent, and the insensibility more complete; there is foaming at the mouth, and a state of coma, or profound sleep, follows the fit; on the contrary, there is no globus rising into the throat, no agitation of the abdomen, no screaming, laughing, or crying, nor any copious discharge of limpid urine, as is common in the commencement of the hysterical fit.

For the relief of hysterical fits, our means will vary according as the peculiar mobility of the nervous system, on which the disorder chiefly depends, is connected with a plethoric habit, and a purely sanguine temperament, or with an habit the reverse of plethoric, in which a considerable degree of debility, and a pale and phlegmatic temperament, prevail. If the patient be of a robust and plethoric constitution, *blood-letting* is the most effectual antispasmodic that can be employed; and, when the convulsions are severe, or long continued, with a flushing or fulness of the vessels of the face and external parts, it is the only antispasmodic that can be administered with safety. At the same time, the turgescence and activity of the blood-vessels, and the consequent over-irritation of the nervous system, may be diminished by the application of cold to the head and abdomen, or to the body in general. The use of nauseating emetics has also been recommended for this purpose. Where the plethora is not so considerable as to warrant general blood-letting, cupping from the neck, or from any part in pain, may be substituted.

But in those habits which exhibit no marks of plethora or of considerable strength, evacuations of blood, so far from being beneficial, are extremely detrimental, and are absolutely enumerated among the causes which induce the disease. In such constitutions, the hysterical paroxysm is to be diminished or cut short by stimulant and antispasmodic medicines. Of these, opium, in its various preparations, is one of the most effectual; and its efficacy is considerably aided by a combination with the more diffusible stimulants, especially with æther and ammonia, or the volatile alkali. It is most commonly not difficult to force the patient to swallow twenty or thirty drops of sulphuric æther and of tincture of opium, in any liquid, at the commencement or during the continuance of the fit; and this is frequently followed by a speedy cessation of the spasmodic motions. Various other stimulant medicines, especially those of strong and pungent odour, may be administered with good effect under the same circumstances; such are the preparations of valerian, muls, castor, camphor, asa-fetida, oil of amber, oleum animale, &c. At the same time, any strong impression made upon the nervous system will frequently arrest the progress of the paroxysm; as the application of any strong-smelling substance to the nostrils, such as burning feathers and volatile salts. The stimulus of heat may likewise be resorted to for the relief of the paroxysm, when it is obstinate; and it may be applied to the whole body, by means of the warm bath; or to the lower extremities, in the way of pediluvium.

After the paroxysm is over, the complaint requires a steady regulation of the circulating and digestive system, of the muscular motions, &c. in the manner before ad-
verted

verted to. This disease is without danger, except when it terminates in epilepsy, a termination by no means uncommon to this and other nervous maladies. This remark naturally leads us to,

3. *Sylpasia epilepsia*, the epilepsy, or falling sickness: general muscular agitation, without sensation or consciousness; recurring at regular or irregular periods.

Of the two first propositions contained in the above definition, we have to remark, that they are liable to much uncertainty. The muscular agitation is of various kinds. In the more common form, in which the attack of the disease is sudden, it consists in a convulsive or twitching agitation; in another form of the disease, the muscles are in a state of fixed rigidity, like tetanus. The limbs are stretched, and the whole trunk extended and fixed by a rigid spasm; the eyes are widely open; not reverted, but staring frightfully; the pupils contracted, and quite insensible to the stimulus of the strongest light: "*Erigitur quoque penis in infantibus; in adolescentibus semen ejicitur, et sepius urina ad magnam distantiam prorumpit.*" In other cases, again, the muscular system is perfectly relaxed throughout the epileptic fit. Sometimes one side of the body is more convulsed than the other; sometimes irregularity is observed. Some of the muscles of the face being more affected than others, exhibit various and violent distortions of the countenance. The tongue is often affected, and thrust out of the mouth, while the muscles of the lower jaw are also affected, and, shutting the mouth with violence, often wound the tongue grievously. A symptom much less variable than the muscular agitation before adverted to, is the state of stupor or insensibility during the paroxysm. In a very great majority of cases this amounts to complete coma; but, in others, a slight degree of sensibility or consciousness remains during the paroxysm. This stupor generally comes on suddenly, and without any premonitory symptoms. Sometimes dizziness and pain in the head, and visual deceptions, are felt before the attack. Sometimes the remarkable sensation called *aura epileptica* precedes the attack: this is a sensation of something moving in some part of the limbs or trunk of the body, and from thence creeping upwards to the head; and, when it arrives there, the person is immediately deprived of sense, and falls into a fit. It is described sometimes as resembling that of a cold vapour, sometimes as like a fluid gliding, and sometimes like the sensation of a small insect creeping, along the body; and very often the patients can give no other distinct idea of their sensation, than as in general of something moving along. It might be supposed that this sensation arose from some affection of the extremity or other part of a nerve, acted upon by some irritating cause; and that the sensation, therefore, followed the course of such nerve. But it is not found to follow the course of any nerve distinctly, and it generally seems to pass along the integuments.

During the epileptic convulsions, the face becomes red, then livid and swelled, from the interruption to the circulation through the head; and there is commonly at the same time a frothy moisture issuing from the mouth; and in the most severe cases the urine and alvine excrements are involuntarily discharged. In some instances a hissing or stertorous noise is emitted. The convulsions have for a few moments some remissions, but are suddenly again renewed with great violence. Generally, after no long time, this terrible struggle ceases altogether, and the patient remains for some time without motion, in a state of absolute insensibility, and under the appearance of a profound sleep. After some continuance of this seeming sleep, he sometimes suddenly, but for the most part by degrees only, recovers his senses and power of motion, but without any memory of what had passed from the first seizure of the fit; and complaining of head-ache, and excessive pain in all the limbs, as if from severe fatigue. During the convulsions, the pulse and respiration are hurried and irregular; but, when they

cease, these return to their usual regularity and healthy state.

It is a remarkable and distressing fact, that epileptic attacks happen much more frequently during sleep than in waking hours. The disease pretty equally affects males and females; nor are there any temperaments, habits, or constitutions, exempt from its attacks. There are periods of life at which epilepsy is more prone to occur than at others. Infants are subject to the disease; but in them it generally arises from irritation in the bowels, and disappears with the exciting cause. The first dentition also is a critical period; but, if the disease appear then, it generally goes off when the dentition is completed. Epilepsy often appears, for the first time, about the eighth, tenth, or twelfth, year; in which case there is danger of its becoming habitual. Still there is a prospect of its subsiding at puberty; but, if this period pass without amendment, there is little hope afterwards. In females, the coming forth of the catamenia sometimes afflicts the constitution in getting rid of the disorder; but it much more frequently gives rise to it; at least there is no period of life in which females are so frequently attacked with epilepsy as the period of first menstruation. The intimate connexion between epilepsy and other nervous disorders we have before adverted to.

The pathology of this disease is obscure. Many eminent writers have contended that epilepsy consists in an unusual fulness of the vessels; and they instance the flushing and turgidity of the countenance, the pulsation of the carotids, the dilatation of the pupils, the relief afforded by blood-letting, the appearances on dissection, &c. in proof of their opinion. We may remark, however, that while we admit that plethora of the head is a very frequent condition of epilepsy, and that it is almost always the sole cause of its fatal termination, we cannot allow that epilepsy arises from plethora of the brain. If that state were indeed the cause of epilepsy, how happens it that epilepsy is not a frequent occurrence in fever, where there is evident cranial plethora? How happens it that it is not more observable in cases in which a mechanical hindrance is opposed to the return of blood from the head? How happens it that the symptoms of epilepsy vary from those of apoplexy, which is evidently a disease of fulness of the head?

To the appearances on dissection we say, that these appearances are not uniform; that frequently no turgescence of vessels is found on necrotomy, especially if the subject be young. If, on the contrary, plethora were the cause of epilepsy, should we not always find it on dissection? Granting that *some part* only of the brain was affected with *vascular fulness*, should we not find that part always and undeviatingly the seat of turgescence on dissection? But we do not find this. We find a fulness of blood in the head; but we do not perceive it more remarkable on the base than on the top of the brain, nor do we find it in all cases any-where. The fact that bleeding does good in epilepsy, is no proof of the inflammatory origin of the disease, because bleeding may do good by diminishing nervous excitability generally, or by diminishing the action of the secretants; in which case they may secrete less of the fluid; which, it may be presumed, irritates some part of the nervous system. In a word, so many are the effects of bleeding on the system, that we cannot found any theory on its effects; and if we were to do so, the event would not bear us out in it. Bleeding often fails in epilepsy, especially in protracted cases; and we scarcely have heard of a case in which bleeding alone was successful.

For our own part, we shall attempt no theory of this disease. We believe that the state called irritation (a state we are ignorant of the nature of, but which is manifested to us by exaltation of the cerebral functions) is the first disease of the brain; that the intensity of this gives rise to cerebral plethora, a state which, by over-distending the capillaries, paralyzes the movements of the superior

superior parts of the brain, which are already debilitated by the over-excitement of that part of the brain (the base and spine) from which the nerves of voluntary motion are derived; the phenomena of epilepsy evidently displaying exaltation of one set of nervous functions, with diminution or complete loss of others. The appearances of dissection, as we have before hinted, are generally those of inflammation; redness of the membranes or substance of the brain, slight adhesions and affusions in the same part, are the most remarkable. Irregularity in the bones of the cranium, some of their projecting parts pressing on the brain, tubercles and ossification of the investing membranes, are sometimes met with.

In the treatment of epilepsy, we have two objects in view. The first to diminish the sanguineous plethora which is the immediate cause of the fit: hence bleeding may be practised during the fit, or as soon after as may be, especially if fulness of pulse be felt, if vertigo or muscæ volitantes have preceded, or if pain in the head has followed it. The degree to which this evacuation is to be carried must be regulated by circumstances. Cases which arise from idiopathic cerebral irritation, will generally allow of more copious abstractions of blood than those which arise from sympathetic or distant irritations. These cases, of what may be called idiopathic cerebral irritation, are comparatively rare. The more frequent forms arise from irritation in the liver, bowels, or stomach. In these cases, local plethora will still require to be obviated. But our attention must chiefly be directed to the treatment of the malady during the remission, by means of regular and sparing diet. Free purging may at first be used in all cases; but, in those under immediate consideration, this must shortly give way to milder laxatives, lest the over-action of the bowels become a fresh cause of irritation. When uterine irritation occasions the epilepsy, (and when we consider the high importance of this system in the female economy, we shall not be surprised at the frequency of this cause;) emmenagogues if the catamenia are suppressed, or sedatives and tonics according to other circumstances, must be resorted to. The main indication being still, as in all other cases, to keep a certain balance of excitement; by diminishing local plethora, and exciting the secreting and motive organs.

The insufficiency of this plan alone suggests the adoption of other measures in addition to them. These measures, however, we have no faith in, unless the digestive organs and the state of the cerebral circulation be at the same time attended to. The first measure is counter-irritation. This may be done by setons in the nape of the neck; perhaps more favourably by issues or setons on the sacrum, or above the knees. If these applications are too troublesome, an issue in one or in each arm will have a similar effect, in a certain degree. If there are any constitutional disorders which may act as drains or diversions, they should be encouraged. A seton in the scalp has been found useful.

Among the medicines which seem to alter the action of the nervous system, and which consequently do good in protracted epilepsies, arsenic and the nitrate of silver hold the first reputation. The former drug has often cured this disease: it is given in the usual moderate dose of ten drops of Fowler's solution, to be gradually increased. It is certainly not so much to be depended on as the nitrate of silver, but is free from an unpleasant effect which we shall presently note as belonging to the latter medicine. The nitrate of silver is a medicine of great power; and, given when the constitutional treatment has been strictly pursued for some time, will, we believe, rarely fail. The unpleasant effect above alluded to consists in a remarkable blackness or discolouration of the skin which has in some cases followed its use, and which, when once formed, lasts for life. It is said, however, that this may be obviated by keeping out the rays

of the sun during the exhibition of the medicine. It is also stated, that a period of from three to six months' continuance in the use of the argenti nitras has always preceded this discolouration: it is therefore advised that we should never continue the medicine for many weeks together; and in fact, if its good effects are not apparent in a month or six weeks, we believe it will be found quite useless.

Dr. Good makes four varieties of this disease.

a. E. cerebialis: attacking abruptly, without evident cause, except sometimes a slight giddiness. The remote cause is external violence to, or internal injury, malformation, or disease, of the head.

β. E. rigida: the limbs fixed and rigid, with agitation of particular organs.

γ. E. sympathetica: catenating with some morbid action of a remote part, with a sense of a cold vapour ascending from it to the head.

A remarkable but authenticated fact is, that the tourniquet applied round the limb before this *aura* has ascended, often stops its progress, and wards off the disease; but, as mental emotion has great effect in keeping off epilepsy, (as the well-known story of Boerhaave, who threatened his patient out of it, testifies,) we should be inclined to attribute this effect to the influence of the imagination.

δ. E. irritata: from sudden emotion of the mind, or irritation of the stomach or bowels.

Genus IX. *Carus*, [*καρος*, deep heavy sleep; from *καρα*, the head.] Torpor. Generic characters—Muscular immobility; mental or corporeal torpitude; or both. There are six species.

1. *Carus asphyxia*, suspended animation: total suspension of all the mental and corporeal functions. Four varieties.

a. A. suffocationis; from hanging or drowning; countenance turgid and livid.

β. A. mephytica; from carbonic acid gas, or other irrespirable auras, by the miners called *damps*, (from the German *dampff*, vapour, exhalation.) In asphyxy from this cause, the countenance, instead of being livid, is pallid.

γ. A. algida; from severe cold: limbs rigid, countenance pallid and shrivelled.

The three grand organs, the brain, lungs, and heart, support motion and secretion by their action and reaction on each other; and the functions of any one of them cannot be suspended without the suspension of the other two. If the action of the heart ceases, the brain ceases to transmit the nervous energies necessary to the action of the respiratory muscles, necessary perhaps also to the oxygenation of the blood. If the action of the nervous power be suspended, the heart retains its powers a short time; but, the respiratory process being suspended, the exertion of those powers is prevented; and so on.

From these premises it follows, that all cases of death are traceable to the suspension of the use of these functions. In most cases this suspension depends on actual destruction of the powers or properties of the part; and consequently revival is impossible. In many cases the powers remain unimpaired, but latent; and are quiet only because the stimulus to them is absent. The wheel of motion, kept up by the action of the heart, lungs, and brain, on each other, has been stopped; but, the powers of action still remaining in those parts, if it is once set going, their reciprocity of action will keep it up. We consequently find sudden death usually from suspension of the function of breathing, as from hanging, drowning, or the like; or from rupture or stoppage, or from mechanical impediment, of the heart; or, lastly, from some unknown change in the brain; presumptively, and indeed certainly in many cases, from rupture of blood-vessels, or general pressure from distention of vessels. To the first of these classes we shall confine ourselves; the second is of course

course remediless; and the third class will be treated of under apoplexy, with the exception of a brief notice in this place.

In the resuscitation of persons drowned or hanged, or rendered insensible by mephitic vapours, the first object will be to place the system in that state of temperature most favourable to the development of the nervous function; viz. that of warmth. The same remark is applicable to cases of suspension of life from cold. It is to be strictly observed, however, that the restoration of heat to the body be not suddenly effected; for, if *stimulation be disproportionate to excitability*, excitation will not be manifested, consequently the increase of temperature should in all cases be at first very small, and gradually augmented. With respect to the quickness with which the increase of heat is to go on, this must vary according to circumstances. We may go on much quicker when suspended animation arises from hanging, drowning, or breathing foul air, than when the body has been frozen. We also begin with a higher temperature at once; for, in the latter case, the friction of the body with water, or even snow, must be the prelude to higher degrees of temperature, while in the former we may at once put the patient into a warm bed, or immerse him in warm grains or water, or whatever may be at hand.

A flexible pipe being introduced through the pharynx into the stomach, a little warm wine and water, with a very minute dose of ammonia, may be injected; some advise also injection per ano. While this is doing, the lungs are to be inflated: this is best done by cutting a hole in the front of the trachea, and introducing a tube affixed to Hunter's bellows; or, if they are not at hand, a common bellows may suffice; the lungs being alternately filled with air, and then exhausted of it by pressure on the chest. Oxygen may be usefully employed when procurable, especially in cases of *A. mephytica*. If a sigh beat at the heart, if the slightest change in the colour of the skin, should indicate an effort on the part of the heart to resume its functions, a little blood should be drawn from the arm, and a shock of electricity of the most insignificant degree passed through this organ. The force of the electricity may gradually be increased.

The above rules embrace all that is requisite for the resuscitation of life. With respect to the *time* at which they are admissible, no rule can be laid down. We may reasonably hope for success when the patient has not been more than a quarter of an hour deprived of air. Seldom do they recover after twenty minutes. Yet so many astonishing cases of resuscitation, after the most extraordinary lapse of time, are on record, (e.g. sixteen or eighteen hours, three days, fifteen days, see Parr's Medical Dictionary, p. 627.) that we should use some measures even in any case within the bounds of probable restoration. But, after twenty minutes' hanging, or three or four hours of submersion, we should be careful not to revive the hopes of the sufferer's relatives merely to plunge them into deeper affliction, by commencing any plans of resuscitation. We cannot pass over, on this subject, a neglect very common among practitioners in general; viz. the desertion of persons suddenly falling (apparently) dead in a fit. It is usual to open a vein or artery; and, if no blood flow, the patient is given up for lost. This practice, deservedly reprobated by the higher orders of the profession, and by no means trusted to in our hospitals, chiefly belongs to the general practitioner. It is acknowledged that these sudden visitations are often irremediably fatal; but nevertheless we are wrong in supposing them to be always so. Often when the veins do not bleed, and the heart remains perfectly quiescent, both these phenomena will appear if stimulating inflations be thrown into the stomach and intestines, and a shock of electricity passed through the heart. On this account, these salutary measures, as well as inflating the lungs, should never be neglected.

This gross abandonment of our fellow-creatures has

been feelingly and forcibly dwelt upon by Mr. White in his work on the "Disorder of Death." This author inculcates the adoption of resuscitative measure in all cases of sudden death. We should, for obvious reasons, not have recourse to it, however, in any but doubtful cases. Dr. Good gives us another variety of Carus, quite beyond the reach of the art of medicine.

1. *A. electrica*; from lightning, or severe stroke of electricity: limbs flexible; countenance pale; blood uncoagulable. In this variety the system seems to be totally exhausted of its irritable and contractile power.

2. Carus ecstasis, ecstasy: total suspension of mental power and voluntary motion; pulsation and breathing continuing; muscles rigid; body erect and inflexible. Said to be produced by profound contemplation or attention of mind, or overwhelming passion; in which case it is reverie with a spastic diathesis. Dr. Cullen regards it as a modification of apoplexy.

3. Carus catalepsia, trance: total suspension of mental power and voluntary motion; pulsation and breathing continuing; muscles flexible; body yielding to and retaining any given position.

In this species the countenance is said to be florid, and the eyes open, and apparently fixed intently upon an object, but without vision. It is a disease of rare occurrence; and varies in its duration from a few hours, or even minutes, to two or three days. It returns sometimes at stated periods. Forty grains of tartar emetic have been given without effect. (Behrends, in Baldingen N. Magazin, Band ix. p. 199.) In the case of a school-boy, aged eleven years, the paroxysms recurred ten times in twenty-four hours, and never exceeded three minutes in duration. If the attack commenced while walking, the same pace was maintained, though without the direction of the mind. (Stearns, Americ. Med. and Phil. Regist. v. i. viii.) The nosologists, however, mention a variety, in which the powers of deglutition and digestion continue, the food being thrust into the mouth. It has been found to be produced by the same causes as the preceding species; and in these cases is perhaps reverie with a spastic diathesis. Cullen ranks this also as a modification of apoplexy; but, like the preceding, it is destitute of stertorous sleep. The existence of catalepsy may however be reasonably doubted. It has been often feigned by impostors.

4. Carus lethargus, lethargy: mental and corporeal torpidity, with deep quiet sleep. The term is applied by the Arabian physicians, not only to the varieties enumerated below, but to comatose affections generally.

α. *L. absolutus*: without intervals of sensation, waking, or consciousness.

β. *L. cataphora*, somnolency: with short remissions or intervals of imperfect waking, sensation, and speech.

γ. *L. vigil*, apparent sleep: perfect lethargy of body, but imperfect lethargy of mind; wandering ideas, and belief of wakefulness during sleep.

Each of these varieties is found as a symptom in fevers of various kinds; concussion or other injuries of the brain; and repelled gout, or other supposed humours or exanthems.

5. Carus apoplexia, apoplexy: mental and corporeal torpidity, with stertorous sleep. Dr. Good notes two varieties.

α. *A. sanguinea*, sanguine apoplexy; with a hard full pulse and flushed countenance.

β. *A. ferosa*, ferous apoplexy; with a feeble pulse and pale countenance.

The varieties of Dr. Good we shall not adopt. The recent light which the continental physicians have thrown on the subject of apoplexy by their dissections, and the experience of our own practical authors, unite in overturning the above distinction. A number of arrangements have been made from the few facts known, which will as inevitably be discarded. In the mean time we may remark, that the dividing a disease into many

varieties answers no good purpose. It makes the pathological student expect to find diseases exactly to correspond with the varieties laid down by his nosologist, while every one knows that will never be the case; consequently it seems better to us to describe the various forms of apoplexy under one head, when the student easily perceives their connexion, and the probability of his meeting with many intermediate forms.

We usually find the apoplectic patient in a state in which, as Dr. Cooke accurately says, "the animal functions are suspended, while the vital and natural functions continue; respiration being generally laborious, and frequently attended with stertor." According to Serres, the stertorous respiration is often slowest when the pulse is quickest; and this want of correspondence between the two functions of circulation and respiration this author considers to be a pathognomonic sign of apoplexy.

Although the attack is often sudden, yet, where patients have paid attention to their own sensations, there have usually been some of the following premonitory symptoms; as, pain in the head, ringing in the ears, vertigo, disposition to somnolency, numbness of the limbs, or sense of formication; dimness of sight; flashes of light before the eyes, with swelling and watering of those organs; flushing of the face; turgidity of the jugular veins; trembling and faltering of the voice; failure of the memory; deep breathing, &c. After more or less of the foregoing premonitions, the attack is ushered in, according to Dr. Abercrombie, in one of the three following forms.

"In the first form, the patient falls down suddenly, deprived of sense and motion, and lies like a person in a deep sleep; his face generally flushed; his breathing stertorous; his pulse full, and not frequent, sometimes below the natural standard; in some cases, convulsions occur. In this state of profound stupor, the patient may die after various intervals, from a few minutes to several days, or he may recover perfectly without any bad consequences of the attack remaining, or he may recover with paralysis of one side. This paralysis may disappear in a few days, or it may subside very gradually, or it may be permanent; other functions, as the speech, may be affected in the same manner; and, sometimes, recovery from the apoplectic state is accompanied by loss of sight.

"The second form of the disease begins with a sudden attack of violent pain in the head; the patient becomes pale, sick, and faint, generally vomits, and frequently, though not always, falls down in a state resembling syncope; the face very pale, the pulse very small. This is sometimes accompanied by slight convulsion. In other cases, he does not fall down, the sudden attack of pain being only accompanied by slight and transient loss of recollection. In both cases, he recovers in a few minutes; is quite sensible, and able to walk; continues to complain of intense head-ache; after a considerable time, perhaps some hours, becomes oppressed, forgetful, and incoherent, and thus gradually sinks into coma, from which he never recovers. In some cases, paralysis of one side occurs; but in others, and I think the greater proportion of this class, there is no paralysis.

"In the third form, the patient is suddenly deprived of the power of one side of the body, and of speech, without stupor; or, if the first attack is accompanied by a degree of stupor, this soon goes off; he appears sensible of his situation, and endeavours to express his feelings by signs. In the farther progress of this form of the disease, great variety occurs; in some cases, it passes gradually into apoplexy, perhaps after a few hours; in others, under the proper treatment, the patient recovers perfectly in a few days. In many cases, the recovery is gradual, and it is only at the end of several weeks or months that the complaint is removed. In another variety, the patient recovers so far as to be able to speak indistinctly, and to walk, dragging his leg by the most

painful effort, and after this makes no further improvement. He may continue in this state for years, and die of some other disease, or he may be cut off by a fresh attack. In a fifth variety, the patient neither recovers nor passes into apoplexy; he is confined to bed, speechless and paralytic, but in possession of his other faculties, and dies gradually exhausted, without apoplexy, several weeks or months after the attack." These two last varieties belong to palsy, properly speaking.

In the severer degrees of this disease, the function of respiration is generally much embarrassed; slow and laborious at the beginning of the paroxysm; frequent, weak, and irregular, towards the fatal termination. Stertor, though not always, is very commonly present; and some of our ablest physicians measure the violence and danger of the disease by the degree of the stertor. This last remark is equally applicable to the frothy saliva, or foam, excreted from the mouth, and sometimes blown away from the lips with considerable force. In respect to the pulse, it is observed by Dr. Cooke, that it is "at first regular, strong, full, and slow, beating from fifty-five to sixty-five times in a minute; but, as the disease advances, it becomes weaker, and more frequent; and, in the end, irregular or intermitting." Dr. Gregory, in his Lectures, observes, that "it is a fatal sign when the pulse is first small, and afterwards becomes very full." When apoplexy terminates fatally, as the disease proceeds, the abolition of sense and voluntary motion seems to become more complete; the respiration and pulse more weak and irregular; cold clammy sweats affect the face and whole body; the features shrink, and convulsions supervene, which terminate in death.

The predisposing causes are, age, (few patients suffering apoplexy before the age of 40,) cold and moisture, plethora, and intense thinking. Any circumstance indeed which fills the blood-vessels inordinately, prevents their due activity in the general circulation of the body, or causes extraordinary action in the brain, may predispose to or actually cause apoplexy. We should also mention, among the causes of apoplexy, disease of the heart, whether this arise from excessive action of this organ generally or from disproportionate action of one of its cavities. The connexion between cardiac and apoplectic disease, which has recently been much dwelt on by the French, is worthy of particular attention. The pathology of apoplexy usually laid down, is that it arises from concussion of the brain, its fatality being caused by a coagulum of blood or an effusion of serum, forming the compressing body. Many dissections, however, discovered no kind of lesion of the above-mentioned sort; and M. Serres, in his experiments on animals, found that compression did not produce apoplexy; and in his dissections of the human body, he sometimes found coagula of blood in the brain without the antecedence of this disease. Hence it became allowable to doubt the correctness of the established doctrine. M. Serres, from numerous dissections, infers, that apoplexy, in all instances except those attended with paralysis, is a disease of the membranes of the brain; hence he calls it *meningeal apoplexy*. That the inflamed, and consequently thickened, and generally effusing, state of the membrane may produce apoplexy by its uniform and extensive pressure over the surface of the cranium, cannot be denied; but it may reasonably be questioned whether apoplexy is membranous inflammation, when we consider the extreme pain usually attendant on that sort of disease; nor do we find that the appearances represented by M. Serres are corroborated by the testimony of other authors. It should be recollected also, that we are not obliged to admit, that, because pressure from a clot of blood does not produce apoplexy, (as stated in the experiments and dissections of M. Serres,) therefore pressure is not the cause of the disease. For the distention of the blood-vessels must induce a very great pressure, and one which is uniformly exerted through the whole substance of the brain. Of course, when we consider the compact

compact and unyielding structure of the cranium, and the incompressibility of the substance of the brain, we shall perceive, that a very slight increase in the momentum of the blood must exercise a powerful pressure on some part or other; and it seems to us, that this part will be the *extreme terminations* of the *arterial branches*. These terminations, having a strong tendency to diminish their caliber in a ratio increasing with the diminution of their size, naturally exert this power in a much greater degree than the larger arteries, which possess not only less of this power, but are so much nearer the heart as to suffer in a greater degree from its impulses: consequently they will be emptied by the pressure of the larger arteries to a degree that will counterbalance all vis a tergo; so that the circulation of the brain will be kept up solely by the middle-sized arteries and veins. That this is the case does not admit of direct proof; yet it is supported by strong inferences, for it is allowed by all, that the brain cannot be diminished in its volume by pressure, except by the emptiness of its vessels. It is also allowed, that the pulsations of the arteries going to the head manifest vigour and fulness; and it is also pretty generally believed, that the blood comes back freely enough through the jugulars; and hence we have the strongest reason to believe, that the capillary system, and that only, is emptied of its blood in apoplexy.

This hypothesis explains the phenomena of apoplexy in a very clear manner. It explains the loss of consciousness that attends this disease; a phenomenon always depending on want of due supply to the arterial terminations of the cerebrum, as we see in syncope from bleeding. It explains how apoplexy is cured by venesection, which, by restraining the action of the heart and the plethora, diminishes the pressure. It shows how, when effusion of blood takes place, and paralysis comes on, there is some amelioration of the apoplectic symptoms; i. e. because the *general* pressure is removed, and one merely local remains; consequently affecting only particular nerves and their dependant functions. That there are exceptions to the last fact only shows, that the effusion of blood may not always be followed by the dilatation of the capillaries; a fact not more surprising than that emptied arteries do not always contract on their contents, as we have reason to believe happens in phlogosis unrestrained by bleeding.

The appearances on dissection are various. M. Serres states, as we before hinted, that in all simple apoplexies (i. e. unaccompanied by paralysis) the membranes of the brain are alone affected. The disease of membranes is sometimes attended with effusion, which is serous, sanguineous, or sero-sanguineous. Sometimes it consists only of redness, distention of the vessels, of the pia mater, shrinking of the dura mater, and opacity, sometimes accompanied with whitish granulations, of the tunica arachnoides. Most authors state, that the blood-vessels in the substance of the brain are always found much distended. It is in the substance of the brain that sanguineous extravasation from rupture of the vessels is usually met with; the corpus striatum and the thalamus nervorum opticum being the precise situations of this lesion.

When apoplexy terminates by paralysis, and the latter in convalescence, the changes which the diseased structure undergoes are very numerous. In the first place, the apoplexy terminates in paralysis, in consequence of the rupture of an artery or vein, which renders the pressure, before general, merely local; and consequently, when death does not speedily follow, allows the cerebrum to resume its functions in some part. The extravasated blood after a time becomes surrounded with a cavernous pouch, somewhat like an aneurismal sac, and which frequently opens by a rent into the ventricles, or on the surface of the cerebrum. The parietes of this cavern is very soft, tinged strongly by the blood, about a line or two in thickness, unequal, anfractuous, and evidently

lacerated on its internal surface, and presenting flaky filaments when agitated in water. It is surrounded by a layer of cerebral substance, about three lines in thickness, of a pale yellow colour, and the consistence of thick cream, scarcely miscible with water: this layer becomes gradually blended with, and lost in, the surrounding healthy brain.

From this cyst, absorption of the effused blood gradually takes place; or at least the brain gradually accommodates itself to the impressing body. "After the absorption of the blood, (says M. Rochoux,) the parietes of the cavern, or pouch, above described, approximate, and in some measure cicatrize, by the intervention of a cellular and vascular connexion, forming various areolæ, between which is found a reddish ichorous fluid, more or less abundant, and sometimes glutinous. These parietes are much denser than the rest of the brain, about a line or two in thickness, and of a yellowish-brown colour. I affirm that these caverns are constantly found after apoplexy terminating in paralysis; and their number always corresponds with the number of attacks." This last remark of Rochoux agrees with that long since made by our illustrious countryman Hunter. See Hunter on the Blood, p. 213.

The treatment of apoplexy varies as it is accompanied with symptoms of paralysis or as these are wanting. In the first attack of the disease, however, the treatment is the same in each variety. The object is to deplete the cerebral vessels. For this purpose the jugular vein should be opened, the patient fixed in an erect posture, and blood drawn until some return of sensation is manifested. Frequently, however, this relief is expected in vain. Seeing the difficulty, therefore, of removing apoplexy, when once formed, it should be the care of the practitioner to notice its premonitory symptoms with peculiar attention. The occurrence of visual deception, the most trifling aberration of the cerebral functions, if attended with sanguineous fulness, or if occurring in patients predisposed to apoplexy from age or formation, will warrant us in taking a large quantity of blood from the arm, and exhibiting a strong drastic purge. The latter being repeated from time to time, and low diet enjoined, by these means an attack of this formidable malady may in almost all instances be ward off.

To return to the treatment of the disease when formed. Instead of the jugular vein, some practitioners have strongly recommended arteriotomy, and have selected the temporal artery for this purpose. It does not seem of much consequence whether the temporal artery or the jugular vein be opened, provided a sufficient quantity of blood be drawn, and that quickly. The smallness of the temporal artery, however, often prevents a sufficient flow of the blood; and no such objection is in force against the jugular vein. When from one of these sources a sufficient quantity of blood has been drawn, our attention must be directed to the state of the alimentary canal. If a large meal has been taken within five or six hours of the attack, or if the patient has been known to suffer under dyspepsia for some time previous to the occurrence of apoplexy, a full dose of ipecacuanha, with copious draughts of warm water, may be administered. In the nervous apoplexy described under Dyspepsia, this measure might precede or supersede blood-letting. Unfortunately, however, the diagnosis between nervous and sanguineous apoplexy is very obscure. When the emetic has operated, aperient clysters are to be given; and these may be followed by drastic purges. The peculiar kinds it is scarcely worth while to specify, as they are sufficiently known. We may remark, however, that the oil of croton, from its intense and sudden action, promises much benefit in apoplexies. If under these circumstances the disease in some measure goes off, restoring consciousness and feeling to the patient, it will be right to prevent the recurrence of the fit by counter-irritating distant parts; as blistering the legs, giving drastic

ric purges, and exciting the kidneys by turpentine or small doses of *tinctura lyttæ*. As to the time it may be right to persevere in these measures, or in bleeding, when little apparent amendment is produced, no general rule can be given. The termination of apoplexy is generally rapid: but, as we have before noticed, exceptions occur sufficiently often to justify the adoption of every measure till the latest period. When the disease terminates in paralysis, it will be necessary to bear in mind the manner in which a cure is effected. But we shall not enlarge on this subject, because it has received full consideration in another part of this work. See *PALSY*, vol. xviii. It may be right, however, to remark, that we should keep up a brisk action of the bowels, and take every means to obviate sanguineous fulness and gastric irritation, as measures most likely to procure absorption. In palsy strictly local, or in cases of such old standing that we have reason to consider the morbid deposition no longer the cause of the disease, and that the paralysis depends on inertness of nerves from mere *habit*, electricity will be found useful.

6. Carus paralysis: corporeal torpidity, and muscular immobility, more or less general; without somnolency. Three varieties.

α. P. hemiplegia; affecting, and confined to, one side of the body.

β. P. paraplegia; affecting, and confined to, the lower half of the body on both sides.

γ. P. particularis; affecting, and confined to, particular limbs.

Palsy is found also, under one of these varieties, occasionally as a symptom in fevers; exanthems; colic, and other affections of the intestinal canal; gout, rheumatism; struma, syphilis, trichoma; diseases of the external organs of sense; wounds, and other external injuries. We do not find that we have any thing material to add to what has been stated in the recent article *PALSY*, vol. xviii. p. 301-3.

CLASS V. GENETICA, [from γενεῖν, to beget.]

DISEASES of the SEXUAL FUNCTION.

Order I. CENOTICA, [from κενωσις, an evacuation.] Affecting the Fluids. Morbid discharges; or excess, deficiency, or irregularity, of such as are natural. This order contains five genera.

Genus I. *Paramenia*, [from παρα, bad, and μνη, the menses.] Morbid evacuation, or deficiency of the catamenial flux.

The catamenial flux is a secretion from the mucous membrane which lines the uterus and superior part of the vagina. It differs from the ordinary mucus secreted in these parts, in coagulating, in occurring periodically (for it appears in health only once a-month), and in its possessing the colour of blood. Its red colour is however the only property which it has in common with blood, it being in every other respect totally different from that fluid, as Hunter has very clearly shown. See Hunter on the Blood, p. 88. In warm climates, women begin and leave off menstruating at a much earlier period of life than in cold ones. The quantum of catamenial discharge, allowing for great varieties dependant on climate and constitution, may be fixed at a mean ratio of five or eight ounces, and the time of its flowing at from four to six days. Nothing is known as to the intimate processes of the human economy by which this monthly action occurs in the female; but it is known that the menstrual flux is in ordinary cases necessary to fit the uterus for conception, and that its interruption or irregularity exerts a very unpleasant influence over many of the functions of the body. The immediate situation of *Paramenia* is of course, as before stated, the uterus and superior part of the vagina. But these parts are often affected by distinct maladies, which we must remove be-

fore remedies acting on the secretents of the uterus will avail. This genus contains five species, besides varieties.

1. *Paramenia obstructio*. In this complaint the catamenial secretion is *obstructed* in its course; sometimes altogether, sometimes only to a certain degree. From the retention of a large quantity of fluid in the blood, symptoms of plethora are often present; and, from the strong sympathy between the stomach and uterus, the former organ becomes disordered, and draws into disorder the rest of the chylopoietic viscera: consequently the usual dyspeptic symptoms of acid and rancid eructation, load at the pit of the stomach, costiveness, low spirits, &c. are hardly ever entirely absent. There are two varieties.

α. *Emanatio*, retention of the menses: obstructed on their accession, or first appearance. Feet and ankles edematous at night; eyes and face in the morning; with other chlorotic symptoms.

β. *Suppressio*, suppression of the menses: obstructed in their regular periods of recurrence. Head-ache, dyspnoea, palpitation of the heart.

From these symptoms it is sufficiently obvious, that *suppression* of the menses is attended with stronger marks of plethora than *retention* of the menses, while in the latter disease the dyspeptic symptoms are more predominant.

Retention of the menses arises from an inactive state of the uterine secretents; (excepting, of course, cases of imperforate hymen.) This inaction may be the result of an insufficient flow of blood to the uterine system, or from a debility which the secretents in general always suffer when those of the skin and alimentary canal are debilitated. Some have said that the disease arises "from a want of power in the system to propel blood into the uterine vessels with a force sufficient to open their extremities;" but surely this pathology is overturned by the fact, that *vigour* of pulse is sometimes met with in retention of the menses. We must therefore look to the disordered state of the secretents for the cure of this disease. It is to be remarked, that, while some women begin menstruation without any unpleasant feelings, others suffer much pain and illness previous to their accession. Moreover the discharge is often irregular, both in quantity and time of occurrence. The first appearance of them is generally at the age of fifteen or sixteen, sometimes not till eighteen or nineteen. These facts are mentioned in this place to guard against the use of medicine for the relief of these natural irregularities, (if we may be allowed the expression,) while general ill feelings are absent. They do not of course arrest the adoption of remedial measures when unpleasant symptoms arise in consequence of the retention.

The treatment of the first variety is sufficiently simple. It consists in exciting the secretent system generally, and that of the uterus in particular. In the first place, the treatment of dyspepsia must be put in force. The usual palliatives, alkalies and opiates, must correct the diseased secretion of the stomach; slight mercurials must be made to operate on the liver; the bowels must be kept in a regular and healthful state by means of laxatives and appropriate diet; and exercise must be regularly taken. After this, the skin is to be excited by means of the cold bath, followed by friction to produce re-action; and moderate doses of stimulating medicines, as gentian, and more particularly steel, may be given. The indications of exciting the uterus is to be effected by the usual popular means of the warm bath applied to the feet or over the hips; and the milder laxatives may give way to purges somewhat drastic. To these measures may be added, in obstinate cases, mild emmenagogues, as the *mistura myrrhæ comp.* or decoct. aloes *conf.* in the usual doses. The addition of ten or twelve drops of tincture of blistering-fly, or of the black

black hellebore, to each dose of the above mixture, will aid their effect. Emmenagogues may be done without in most cases; and they are of little use, unless the dyspeptic treatment precedes or accompanies their administration.

The two following species of mis-menstruation, and the treatment of suppression of the menses, we shall discuss together, because, as we shall presently show, a few simple principles will better accord with our practical information as to their treatment, than any artificial details drawn from external appearance.

2. *Paramenia difficilis*, laborious menstruation: catamenia protruded with great local pain, and especially in the loins; part of the fluid coagulable.

3. *Paramenia superflua*, excessive menstruation: catamenia excessive, and accompanied with hemorrhage from the menstrual vessels. Two varieties.

α. *Crebra*; excessive from a too frequent recurrence.

β. *Profusa*, profuse menstruation; (*Issue of blood*, Matth. ix. 20.) Excessive from too large a flow at the proper periods.

Of that species of mis-menstruation which is characterized by a more frequent return of the complaint than natural, we can afford no satisfactory pathology, because we are unacquainted with the cause which brings on the catamenia even during health, and consequently cannot be supposed to know the cause of its more frequent occurrence. The improvement of the general health will be generally attended with the cure of this malady. As to suppressed, painful, and profuse, menstruation; the first is sometimes, and the two last frequently, attended with symptoms which characterize a certain degree of periodical inflammation in the parts affected. This is peculiarly the case in these coagulating discharges which are met with in painful menstruation, and which for the most part are of lymphatic construction, and accurately coincide with the surface from which they are exuded. The latter fact is not however perceived, unless the coagula are placed in water, where they gradually display a placental or a tubular form, evidently corresponding with some portion of the uterus. Again; profuse menstruation is sometimes attended with a quick and full pulse, and more especially when an actual hemorrhage takes place. In each of these cases it will be necessary to deplete the system in a moderate degree; in suppression of the menses, by leeching, and to excite the relaxation by a warm hip-bath and brisk cathartics; in painful menstruation, it may in some cases be allowed to take blood more generally; and, in addition to the warm bath, &c. opiates should be given in somewhat ample doses. When the uterine discharges become profuse, the very nature of the complaint itself forbids the use of bleeding; but nevertheless, by low living and by the exhibition of digitalis or plumbi superacetatis, we must in some measure imitate the practice laid down with reference to phlogosis of the mucous membrane, or active hemorrhage.

In the greater proportion of cases, the profuse and the impeded action of the menstruating organs will be found connected with debility of the uterine secretions, and of the body generally; and will require a stimulating treatment. The diet must be regulated so as to ensure general vigour of the constitution, and the bowels and chylipoietic viscera in general excited to secretion. At the time proper for the menses to come on, the usual means of warm bathing of the lower extremities, emmenagogues, and, lastly, electricity passed through the womb, will ensure the accession of the flux; while narcotics and astringents, as opium and sulphuric acid, &c. with rest, will generally be successful in restraining an excessive passive discharge.

4. *Paramenia erroris*, vicarious menstruation: catamenia transferred to, and excreted at, remote organs.

Vicarious menstruation is curable only by such remedies as excite and irritate the uterine secretions. This

disease offers curious examples of that process called metastasis. Dr. Good enumerates many varieties; viz.

α. Ex oculis fluens. *Dodonæi* Obs. cap. xv. *Boerh. Aph.*

β. Ex naribus. *Paræi*, xxv. 12. *Brassavol. Aph.*

γ. Ex alveolo dentis. *Rousséi* de Hom. primord. c. 28.

δ. Ex auribus. *Brassavol. Aph.* xxv. sect. 4.

ε. Ex mammarum papillis. *Amat. Cent. ii. cur. 21.*

ζ. Ex vomitu. *Hipp. de Morb. Mul. Aretæi*, lib. ii.

η. Per intestina. *Galen. in Aph.* xxxv. f. v.

θ. Ex podice. *Paræi*, lib. xxiii. cap. 12.

ι. Per urinam. *Brassavol. Aph.* xxx. f. v.

κ. Ex umbilico. *Nicolai Florent. Serm. ii. c. 8.*

λ. Ex digito. *Mercat. de mulier affect. lib. i. c. 7.*

μ. Ex cute. *Haller. comment. 667. p. 87.* See also

Cruikshank on Absorb. 4to. p. 54. *Phil. Trans. vol. xiv.*

121. *Richerand's Elem. de Physiol. Aph. clxxi.*

5. *Paramenia cessationis*: catamenial flux irregular at the term of its natural cessation; occasionally accompanied with symptoms of dropsy, glandular tumours, or spurious pregnancy.

The cessation of the menses is, from the unusual quantity of fluids thrown into the general circulation, often attended with a variety of acute and chronic inflammations. These are best obviated by occasional bleedings and purgatives. When they make their appearance, counter-irritants, as setons, &c. are highly useful. On this account we are directed not to heal ulcers and breakings-out in the lower limbs at this period of life. The uterine discharge generally stops at about the forty-fifth year; but it has sometimes continued to a very late period of life. To the age of 71; *Holdefreund, Erzählungen*, n. 4. To the age of 80; *Bourgeois, Hebammenb. part. ii. cap. 6.* To the age of 90; *Hugendorn, cent. ii. obs. 84.* See, for various cases, *Pelargus, Med. Jarh. iii. 347*, and following.

Genus II. *Leucorrhæa*, [from λευκος, white, and ῥεω, to flow.] Fluor albus, or whites. Generic characters—Mucous discharge from the vagina, commonly without infection; disappearing during menstruation.

The discharges from the female organs of women have been for the most part indiscriminately treated of under the term *whites*. The impropriety of this sweeping designation is evident from the variety of diseases of which a discharge of this kind may be a symptom. The common causes of discharges from the vagina are the same as those of mucous phlogoses in general; viz. cold debilitating the functions of the skin, mechanical irritation (hence the occurrence of leucorrhæa from excessive copulation), diseased secretions poured over the surface of the vagina, as when the uterus is diseased, or distant irritation. The vagina is also exposed to increase of its mucous discharge from relaxation of its muscular coat; for this, of course, allows a greater afflux of blood to pass to the mucous membrane, and hence more copious secretion follows. The discharge has in so many instances been traced to this last source, that most people consider *whites* as the result of weakness, and prescribe stimulating medicines without caution. It should be remembered, however, that all mucous membranes are liable to similar kinds of diseased action; and that inflammation is perhaps of all others the most common affection they are subject to.

The distinction which has been made by Dr. Clarke of the different varieties of this disease are taken from the appearance of the discharge. It appears that a transparent or a white mucous discharge is the result of inflammation of the mucous membrane in the vagina, uterus, meatus urinarius, or bladder; and that a more purulent discharge has its origin from the same source in more violent cases. On the other hand, we find the purulent discharge, especially when mixed with blood, a symptom of the corroding or the carcinomatous ulcers of the cervix.

vix uteri, of abscess of the womb, or abscess in some part of the vagina. Lastly a *watery* discharge, according to Dr. Clarke, accompanies the cauliflower excrescence of the os uteri, hydatids of the womb, and the oozing excrescence of the labia. There are three species.

1. *Leucorrhœa communis*, simple inflammation of the mucous membrane of the vagina, is characterised by a discharge of a transparent mucus of a gelatinous nature, which does not render water turbid, and which, when it arrives at the external labia, acquires from friction with the air a white colour. This discharge may be produced by two different kinds of action in the mucous membrane, which bear a close analogy to two diseases of a similar but distant structure; viz. acute and chronic bronchitis. Thus in one instance this discharge is caused by cold, full living, and idleness; attacks robust and above all corpulent persons, who for the most part menstruate in great quantities; is attended with much disorder of the hepatic functions; with vertigo, musci-volantes, and other symptoms of undue circulation in the head, and with a full pulse. In a word, all the symptoms of plethora are sufficiently manifest. The treatment is in this case sufficiently obvious. It consists in removing the general plethora by bleeding from the arm, and the local fulness by leeches or cupping. The bilious disorder is to be remedied by regular doses of calomel; the bowels kept open by brisk saline, but not drastic, cathartics; and a low diet enjoined. At the same time, the discharge, as it is a consequence of plethora, and as it tends to cure more violent maladies, as hæmorrhage and apoplexy (to which the patients under consideration are very liable), must not be suddenly restrained. At first indeed the warm bath and the frequent injection of warm water into the vagina will be proper, not only to cleanse the acrimonious discharge, but to make it flow more freely; and it will not be till some time after the plethoric, biliary, and indeed all unpleasant symptoms except the discharge, are gone, that we may venture to order an astringent application. This may be a weak solution of sulphate of zinc, or of super-acetate of lead.

But the other form of the complaint which, as we before stated, depends on the relaxation of the muscular structure of the vagina, and so connected with actual debility, attacks weak and dyspeptic patients, those who live in a moist atmosphere (hence its frequency in Holland), those who keep bad hours, inhabit hot rooms, and lie long and late in bed, or who suckle their children for too long a time. Pallor, and a yellowish exanguious state of the skin, with a doughy feel, and in the feet and legs slight œdematous swellings of the integuments, mark the patients of this malady. The pulse, small and sometimes quick, is liable to acceleration from occasional nervous palpitations. Anorexia, flatulence, costiveness, and irregularity in the secretion of bile, pave the way to a more or less marked degree of hectic fever, which eventually leads to other and more eventful maladies.

The treatment of these sort of cases must of course be different from that before described. The removal to a drier atmosphere, the interdiction of late hours, the substitution of a daily nap on the sofa for late indulgence in bed, are the first and most obvious measures. Passive exercise must be used in the early stages of the malady; and active muscular motion must be reserved for cases in which the system has recovered, or has not lost, a certain degree of vigour. The food must be at first light, and requiring little power in the stomach to digest it; as soups, jellies, &c. but these must be succeeded by solid animal food before the vigour of constitution will be quite restored. The bowels must be kept open by mild laxatives; the liver, if inactive, must be operated on by a few grains of blue-pill every other night. Gentian and carbonate of ammonia will tend, in conjunction with proper diet and a free state of the bowels, to excite the powers of the system in a very salutary manner. As soon as some material amendment has taken place in the gene-

ral health, and not till then, should we turn our attention to the restraining of the discharge. For this purpose the gentian and ammonia may be advantageously changed for the exhibition of some preparation of iron, combined with an alkali, and occasionally with myrrh. Cold bathing and astringent injections may now be used. For the latter, solution of alum or sulphate of zinc are the most proper, their strength being, as in other cases, gradually increased.

2. *Leucorrhœa nabothi*, labour-show: slimy, and for the most part tinged with blood. Secreted by the glandulæ nabothi situate on the mouth of the uterus; and chiefly on the beginning of labour.

The same parts are however liable to another discharge, coming at a different time, and possessing characters quite different from the above description. In some cases of vaginal discharge, the fluid seems to come from the superior parts; and hence, though probably mixed with the common mucus of the vagina itself, exhibits characters somewhat different. It is described by Mr. Clarke, who calls it the *white mucous discharge*, as being "opaque, of a perfect white colour, and resembling in consistence a mixture of starch and water made without heat, or thin cream." This discharge is easily washed from the finger after an examination; and it is capable of being diffused through water, rendering it turbid. Mr. Clarke is of opinion, that "a morbid state of the glands in the cervix of the uterus probably gives rise to this discharge; at least, the cases in which it comes away are those in which the symptoms are referred to this part; and, when pressure is made upon the cervix uteri under such circumstances, the woman complains of considerable pain."

It seems from the causes and symptoms of these diseases, and from the nature of the curative agents found most useful in its treatment, that the above morbid state of the cervix uteri is chronic inflammation. With regard to the pathognomonic sign, tenderness of the os uteri, this of course is only known by introducing the finger into the vagina. In doing this, little irritation is excited in the vagina itself; but, as soon as the os uteri is touched, a great degree of uneasiness is felt. The same sensation is also felt during the passage of an evacuation along the rectum. The cervix uteri feels polished and smooth; and this distinguishes the disease from carcinoma, in which *hardness* is felt; and from ulceration, in which of course some breach of surface is felt. In this affection few symptoms are present. The patient complains of uneasiness in the back, and lower part of the abdomen, which gradually becomes actual pain. Riding, or other motion tending to induce pressure, increase this pain in some degree; but the straining required to evacuate indurated fæces renders it very acute. The same attempt often squeezes from the vagina the mucous secretion, which is always accumulated there in a greater or less quantity in this disease; and, as it falls down on the motion, is apt to lead persons to suspect that some disease in the rectum has given rise to the discharge. A certain degree of strangury also is generally present; and sometimes cystic tumors in the vagina have been met with, when they have probably been caused by the same inflammatory action which gives rise to the tenderness of the os uteri. The presence of a mucous discharge, the absence of pain when the lower part of the belly is pressed on, and the absence also of periodical exacerbations of pain, distinguish this disease from hysteritis, or inflammation of the substance of the womb.

The treatment differs little from that laid down for leucorrhœa dependant on inflammatory action. Local blood-letting, by cupping or leeching the back or groins, repeated according to circumstances, forms the basis of the treatment; and, where symptomatic fever presents itself, venesection is proper, though seldom necessary. The hip-bath is a useful remedy, and the patient may sit in it twice a-day, at the temperature of 90°. Where this last cannot be procured, fomentations to the back or abdomen

men are serviceable. Tepid water thrown into the vagina, constitutes a direct fomentation to the part affected. Mild laxatives, and, at bed-time, five grains of Dover's powder, and three of camphor, may be resorted to with advantage. If strangury be considerable in degree, a large dose of opium will be necessary, such as 60 or 80 drops of laudanum, and smaller doses frequently repeated afterwards, with mucilaginous drinks. Whenever the bladder is unequal to the expulsion of its contents, the catheter should be used; for it will be in vain to trust to diuretics. Although it is not often necessary to keep the patient in bed, yet the horizontal position should be persisted in for some time, and all new causes of irritation (especially copulation) avoided.

The next appearance to be noticed in vaginal discharges is that of pus. This fluid is sometimes secreted from the mucous membrane of the uterus and vagina in consequence of inflammatory action. It is distinguished from the fluid which flows from an ulcer or abscess by this circumstance; that the pus poured from an ulcerated cavity in the uterus is frequently mixed with blood, while that secreted from the unaltered membrane during the inflammatory process is rarely discoloured by the sanguineous fluid: it is in fact a muco-purulent discharge. Now the symptoms of this complaint are, generally speaking, not very different from those which attend the mucous discharge which inflammation induces in the parts in question. When the vagina is particularly affected, itching of the external parts, and a sensation of burning, extended from the labia "up the body" (as it is expressed by patients), are experienced; and, when the os uteri is open, little difference is found between this and common phlogoses of its lining, except perhaps that the pain in the last is more violent. Add to this, that in all cases of purulent discharge, even when this is in small quantity, hectic fever and weakness and emaciation are seldom absent.

It is to be remembered, however, that the structure of the vagina and of the uterus renders them liable to some peculiar symptoms from the disease in question. Thus the cellular substance of the vagina, being much furnished with vessels, and liable to many sources of irritation, is liable also to have abscesses formed, when the mucous membrane has been so much diseased as to produce pus. These abscesses are of course only to be detected by manual examination; and to be treated by the practice usually followed in other abscesses. It is first discovered on the part of the patient by a sudden breaking of some internal part, followed by a copious discharge.

When pus is secreted in the womb, and the os uteri, from its closure by means of coagulable lymph or from the firmness of its contraction, denies an exit to this fluid, a peculiar set of symptoms arise. The uterus swells in a rapid manner; so rapidly indeed, that it might be taken for pregnancy, if the tenderness of the belly, the acute pain in the back, the general disease of the patient, and the occasional passing of menstrual mixed with purulent discharge, did not forbid such a supposition. Sometimes the os uteri opens in consequence of the distending form of the enclosed fluid; but on some occasions this has been here so far from taking place, that the pus has only found exit by an ulcerated passage through the stricture of the diseased organ into the rectum. It is scarcely necessary to add, that the usual means of moderating vascular action, soothing the nervous irritability of the part by fomentations, and of the system by narcotics, and inducing an healthy state of blood by proper diet and medicine; are required in this disease to be conducted in the same manner as in abscess, or in inflammation of the mucous membranes.

3. *Leucorrhœa senescentium*: thin, acrid, frequently excoriating and fetid.

Under this term we shall include those diseases which, according to Mr. Clarke's arrangement, are attended with a watery discharge. In doing this, we fear we pay too

little respect to the nosological arrangement of Dr. Good; but the fact is, that we find no evidence of this kind of discharge as an idiopathic disease; and moreover, we do not find that all the diseases of which it is a symptom are specified in our system. To leave them out on this account would be unpardonable.

1. A discharge resembling clear water, containing very little or no glutinous matter, results from cauliflower excrescence of the os uteri, hydatis of the uterus, or oozing excrescence of the labia.

The cauliflower excrescence is so named from its striking resemblance to the upper surface of a cauliflower, or a head of brocoli. The surface is granulated, and consists of a great number of small projections, which may be picked off from the surface, as the granules may be detached from the vegetable. The firmness of the tumour agrees also with that of the plant: here the granules will be large and irregular, there small and equal. From a very fine membrane spread over the surface of this tumour is poured out the aqueous secretion. As the tumour occupies the upper part of the vagina, it is concealed from view; but in some cases, where it attained a considerable size, Mr. Clarke had seen it, and asserts that it had a bright flesh colour. It pours out arterial-looking blood very plentifully, if injured during examination, and sometimes spontaneously in plethoric habits. This excrescence has little or no sensibility; can never be traced into the cavity of the uterus; is sometimes rapid in its growth, but much influenced by the contractile power of the vagina, being more rapidly developed in married women who have borne children than in single women. It is highly vascular, and is of a structure analogous to the placenta.

A perception of moisture, and then gradually an inconvenient discharge, are the first symptoms. The discharge increases; but, being unattended by pain or fever, the complaint is neglected, until a tinge of blood is perceived, or the colour of the cheek begins to change, with a corresponding loss of strength. Then the alarm is taken. A discharge of blood almost always succeeds sexual intercourse; the digestion begins to be impaired; hysterical symptoms are produced, and all that host of inexplicable phenomena consequent on derangement of the chylopoietic viscera, increasing the patient's stock of bodily and mental misery. Increase of debility is accompanied with decrease of absorption, and, of course, with depositions of fluid in different parts of the body, producing œdema of the feet at night, and puffiness of the face and eyelids in the morning. On this account, hydrothorax may destroy the patient long before she would have been exhausted by the disease itself. An alarming hæmorrhage sometimes induces a fatal syncope. No great degree of emaciation, in general, attends the complaint. On the contrary, in several dissections, a layer of fat, of considerable thickness, has been found covering the abdominal muscles. This fat state of the subject of such an excrescence, forms a remarkable contrast to the extreme emaciation which attends carcinomatous tumours. The feel of this tumour by the finger distinguishes it from the hardened cervix uteri of the incipient carcinoma, and from the irregularity of surface met with in the ulcerated state of the same organ. The discharge also differs; yet, as in this complaint a discharge is present, as now and then it is fetid, as a tumour is found upon examination, and as the disease has always, sooner or later, a fatal tendency, it has been too frequently confounded with carcinoma. The prognostic, as to the ultimate event, it is true, must be nearly the same; but there is reason to believe that the size of the tumour may be diminished by judicious management, particularly by diminishing the action and fulness of the blood-vessels of the neighbouring parts. At all events, enlargement of the tumour will be greatly retarded.

With this view, local blood-letting from the region of the sacrum and hips is a most valuable remedy. The quantity

quantity of blood to be taken away must be regulated by the size and degree of resistance in the tumour, and by the quantity of watery discharge (always a measure of the extent of disease), regard being paid to the strength of the patient. At the same time it must be recollected, that if, by the loss of eight or ten ounces of blood by cupping, the quantity of the watery discharge can be diminished from four ounces to two ounces daily, the patient will, at the end of a fortnight, possess more power than if she had lost four ounces of blood by cupping, and the quantity of the watery discharge had been diminished to three ounces daily.

Local bleeding, however, when intemperately employed, may hasten the patient's dissolution. It should not be prescribed when much œdema of the feet is present, nor during the prevalence of much debility; in fact, it should not, at any time, be carried farther than just to produce the intended effect, as there are many other auxiliary arts in reserve. If the patient should be a strong woman, and if the disease has not been of long duration, twelve or fourteen ounces of blood may be taken away: if she should possess less strength of constitution, it may be sufficient to order the removal of six or eight ounces only; and to repeat this once in three weeks or a month. The application of leeches to the pudendum is also serviceable. All general and local stimuli are of course to be avoided; the diet to be of the mildest kind, as puddings, white fish, and vegetables. Wine and sexual connexion to be entirely proscribed. The bowels should be so managed, that one easy motion be daily procured; all straining efforts in evacuating the rectum being as injurious in this as in other uterine complaints. The sulphate of magnesia in infusion of roses will be found a mild laxative.

The enlargement of the tumour may be greatly diminished, and the discharge consequently lessened, by the application of cold to the outside of the pelvis, and by the injection of cold fluids into the cavity of the vagina. Cold water may be applied to the external parts of generation, to the pubis, and to the loins, by means of a sponge; and this may be done, not once or twice only in the twenty-four hours, but several times: by keeping the parts in this way constantly chilled, the blood-vessels will be contracted, and the advantages resulting from such a mode of treatment will soon be made evident, in the diminution of the quantity of the discharge, and in the improvement of the constitutional health. The recumbent posture ought to be insisted upon; and, in injecting fluids, care should be taken that the syringe does not touch the excrescence, otherwise blood will flow. A cylindrical syringe, the diameter of which is about three quarters of an inch, the extremity being rounded off, may be used for this purpose; and the patient should be cautioned not to introduce it farther than an inch, or an inch and a half.

In that aggravated form of the disease, where the tumour nearly protrudes, the patient should lie down upon the bed with her hips raised, and a small quantity of the astringent fluid should be poured in between the labia, with a common butter-boat. When the tumour has actually protruded, compresses dipped in an astringent fluid may be applied, or a sponge wetted with it may be lightly drawn over the surface. The astringent injections recommended, consist of sulphate of zinc and water in various proportions, or alum and water. Solutions of the mineral astringents in decoctions of astringent vegetables, constitute applications possessed of great power: such as, *cort. granat. contuf. ʒfs. aq. distillat. ʒxiij. coque per sextam partem horæ et cola, dein adde liquori colato aluminis ʒij.* Galls, or oak-bark may be substituted for the pomegranate. The efficacy of the latter formulæ in a great measure depends upon the tannin. As this principle has the power of coagulating albumen, so as to form an insoluble precipitate, it becomes necessary to prepare the patient for a circumstance which may

otherwise occasion great alarm in her mind; the appearance of thin, whitish, or ash-coloured, flakes, which will come away from time to time. These are frequently thought to be portions of the body, and the agitation of the patient's mind has been very considerable, until it has been quieted by some explanation. Where irritable vagina exists, a mixture of decoction of oak-bark and linseed tea, forms a less irritating lotion.

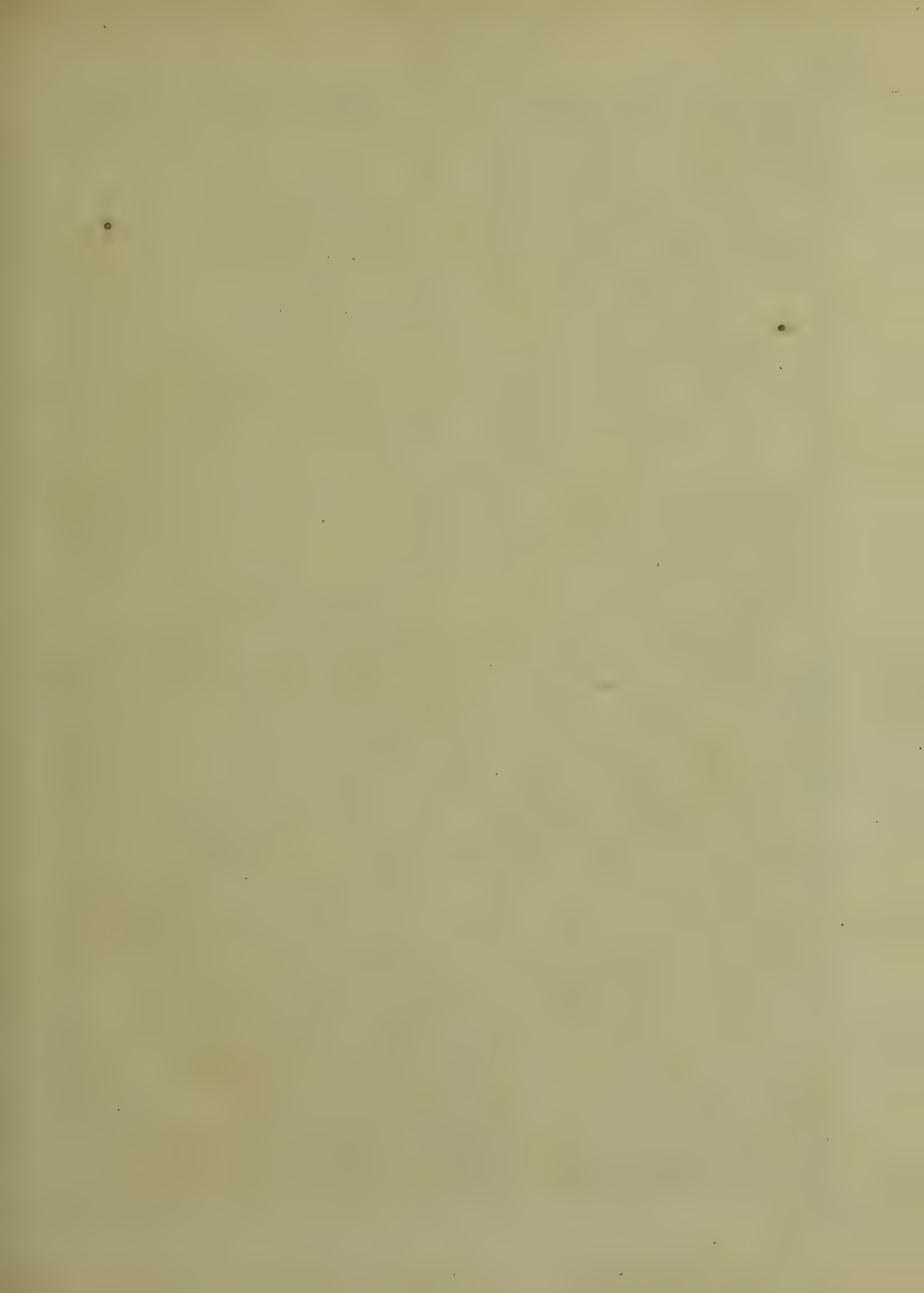
In many cases, where the constitution has suffered, the powers of nature require to be recruited, and we must employ some light tonic. The muriatic and sulphuric acids are appropriate medicines. Sulphate of zinc, in such doses as do not excite vomiting, and combined with an essential oil to reconcile the stomach to its use, is recommended as occasionally useful. Say as follows: Sulphate of zinc, gr. xv. extract of hop, ʒi. oil of cinnamon, gt. iij. ℞. in pil. xv. one to be taken every night.

In some instances the resources of the medical art fail, and then the ligature holds out a prospect of relief, which has now and then been realized. True it is, that the fungus may, and probably will, be regenerated; but a considerable time may elapse before a tumour of large size forns; and in the interim, by the removal of the secreting surface, the discharge will be restrained, and time will be afforded for the powers of the patient to recruit.

2. Hydatids of the uterus are connected with the uterus and with each other by small filaments and by portions of substances partly bloody and partly gelatinous. A similar substance is attached to the internal part of the uterus, from which the footstalks of the hydatids grow. The number of these hydatids increasing, the cavity of the uterus enlarges; and, when the organ has attained a large size, it contracts upon its contents. When the pelvis can no longer contain the enlarged uterus, that viscus rises into the cavity of the abdomen, and may be felt as a circumscribed tumour through the parietes. The function of menstruation is usually interrupted.

In the examination of a patient labouring under hydatids of the uterus, the body of this viscus will be found enlarged, and suddenly bulging out from the upper part of the cervix. All these symptoms attend other enlarged states of the uterus; but there remains to be mentioned one other symptom which serves to distinguish this disease from all others, and from pregnancy, —and this symptom is the discharge of an almost-colourless watery fluid. This watery discharge is to be distinguished from that which attends the cauliflower-excrecence, by the irregularity and suddenness of its appearance and cessation; being produced by a rupture of one or more of the coats of these hydatids, in consequence of the occasional contraction of the uterus upon them, or of any sudden violence, as in the act of coughing or sneezing; whereas the discharge from the cauliflower-excrecence, being a secretion from its surface, is constantly escaping. The fluid watery discharge may be distinguished from those splashes of urine which sometimes come away from pregnant women, by being wholly inodorous.

Sooner or later a parturient nifus takes place: the os uteri opens; the hydatids are expelled by periodical pains; and then, for the first time, danger presents itself in the form of a frightful hæmorrhage. The reason of this last is obvious. The placenta covers only a limited space of the internal surface of the uterus, whereas the hydatids spring from every portion of the cavity. No means of curing or arresting the progress of this disease have hitherto been discovered. The patient is to be apprised of the nature of the complaint, and the event is to be patiently waited for, treating occasional symptoms as they arise. When the time arrives at which the uterus struggles to unload itself of its contents, then all the skill and energy of the practitioner will be necessary to control the hæmorrhage, and sustain the powers of the constitution. Perfect quietude in the horizontal posture should be enjoined,



The first of these is the fact that the government has been unable to secure the cooperation of the people in the war effort. This is due to a variety of causes, including the lack of a strong sense of national unity, the influence of foreign propaganda, and the failure of the government to implement effective measures to mobilize the population.

The second cause is the lack of a strong sense of national unity. This is due to the fact that the government has failed to create a common identity among the people, and has instead allowed them to remain divided along tribal and regional lines.

The third cause is the influence of foreign propaganda. This has been particularly effective in the case of the British, who have been able to exploit the people's fears and prejudices to their own advantage.

The fourth cause is the failure of the government to implement effective measures to mobilize the population. This has been due to a variety of factors, including the lack of a strong central authority, the influence of local interests, and the failure of the government to create a sense of urgency.

The fifth cause is the failure of the government to create a sense of urgency. This has been due to the fact that the government has failed to make it clear to the people that the war is a matter of life and death for the nation.

The sixth cause is the failure of the government to make it clear to the people that the war is a matter of life and death for the nation. This has been due to the fact that the government has failed to communicate its message effectively.

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The sixteenth cause is the failure of the government to communicate its message effectively. This has been due to a variety of factors, including the lack of a strong communication system, the influence of local interests, and the failure of the government to create a sense of urgency.

joined, and all stimulating food and drink denied. Cold applications are to be used to the loins, abdomen, and external organs; and portions of ice (their acute edges being rounded off by being held in the hand) may be introduced into the vagina, or into the uterus. "Let it not, however, be forgotten," (says Mr. Clarke,) that the great remedy for uterine hæmorrhage is uterine contraction; and every possible mode of exciting this is to be put in practice. The application of a bandage round the abdomen has sometimes the power of exciting this contraction: but, if the hæmorrhage should continue profuse, and if any portion of the hydatids should remain in the uterus, an attempt should be made to remove these, in order to produce complete contraction of the muscular fibres. Two or three fingers, or the whole hand, covered with pomatum, should be carefully introduced into the uterus, and carried up between the sides of the uterus and the hydatids, which are to be detached from the part to which they adhere by the most gentle means. The mass, being now included in the hand of the operator, is to be brought out of the uterus, the surgeon recollecting always, in the performance of this operation, that the degree to which the os uteri is dilatable without laceration, is in proportion to the size of the whole uterus, both in pregnancy as well as in this disease. So that, supposing the uterus in this disease to be enlarged to the size of that viscus in the sixth or seventh month of pregnancy, the whole hand of the operator may be, if necessary, introduced through the cervix; whereas, in smaller dimensions of the uterus, if any attempt is made to introduce the whole hand through the cervix, however carefully it may be attempted, a laceration of it may ensue, and thus the patient may be involved in a new danger. The expulsion over, and hæmorrhage restrained, the constitution must be invigorated by suitable means, particularly by the cinchona and mineral acids.

3. *Oozing Tumour of the Labium.* In this, the discharge arises from the surface, or rather from the interstices of the tumour. The fluid is of a watery nature, and sometimes very abundant in quantity, being renewed almost immediately after the surface has been dried by a napkin. Blood never issues from the tumour, so that it has no analogy with cauliflower excrescence. The tumour is sometimes so large as to occupy the whole of the labia, extending even to the mons veneris. It seldom projects more than a line or two above the plane of the surrounding skin. The colour of the tumour varies little from that of the cuticle of the neighbouring parts. In the immediate neighbourhood of the tumour œdema is occasionally met with, but the tumour is not œdematous; soon after the surface of the tumour has been wiped quite dry, a watery fluid begins to ooze from it, and to form drops, which, having become large, at length run off, and keep the surrounding parts in a state of constant humidity; sometimes soreness and excoriation take place, as upon the upper lip when the secretion from the nostrils is increased, but the tumour itself is seldom rendered more sensible.

The secretion from this tumour corresponds, in appearance, with that from the cauliflower excrescence. The disease having begun, it continues to enlarge; and insulated patches of it appear in the neighbouring parts, at length running into each other. The complaint seldom attacks young women. The principal inconveniences of this disease are, an itching, sometimes preternatural sense of heat, and a watery discharge. When excoriations of the neighbouring parts are present, or an erysipelatous blush appears upon them, more advantage will be derived from the internal exhibition of the cinchona in substance than from any other medicine; but no impression will be made upon the disease itself by this valuable remedy; and even the symptoms above mentioned will frequently recur, and call for the employment of other remedies.

A nutritious diet, and a moderate allowance of wine,

should be prescribed. External applications may mitigate, but never cure, the complaint. Common starch-powder, repeatedly sprinkled over the parts till it cakes upon them, is a very efficient remedy; but it will be necessary to keep the patient in the horizontal posture during its use; a position indeed which has a beneficial influence in itself. A mixture of starch-powder and cupri sulphas, very finely levigated, has been found serviceable; or a solution of cupri sulphas, or of argentum nitratum, may be used. A solution of gum arabic in decoctum quercus may be tried. Cold water is also a valuable remedy, and there are no cases in which it will not afford much temporary comfort. Perhaps the most effectual applications are of a spirituous nature. Strong new port-wine has afforded great relief; and, when this has failed, brandy or arquebuseade may be employed, or even alcohol. The complaint, upon the whole, is very rare.

Genus III. *Blenorrhœa*, [from *βλεῖναι*, mucus, and *ῥεω*, to flow.] Muculent discharge from the urethra or vagina; generally with local irritation, and dysuria; not disappearing during menstruation. (*Gonorrhœa*, *Sauv.* and *Cullen.*) Three species.

1. *Blenorrhœa simplex*, (*Gonorrhœa pura*, *Sauv.* and *Cull.*) Simple increased secretion from the mucous glands of the urethra.

That a mucous secretion may arise from the meatus urinatus of the female without specific venom, is well known; and hence, were not cases on record to prove the fact, we should still infer the possibility of a gonorrhœa existing without copulation. We may remark, however, that this is perhaps one of the rarest diseases we are subject to. It would of course require the very simple means of plentiful dilution and mild purgatives.

2. *Blenorrhœa luodes*, (*Gonorrhœa impura*, *Cull.*) Clap. Muculent discharge from the urethra or vagina intermixed with specific venom; burning pain in micturition; produced by impure coition; infectious.

We shall enter into no speculations as to the nature of clap, whether it be lues, owing its character to the peculiar structure it occupies, or whether it be a distinct disease. At all events, its appearance and its cure are quite different; and, whether the mucous membrane is unfavourable to the absorption of the virus, or whether the virus of clap is not capable of affecting the constitution at large, secondary symptoms do not follow this disease. It comes on from forty-eight hours to four days after copulation; and is usually preceded by tingling and itching of the penis. The above definition embraces all the characters of *Blenorrhœa* in men. In women the disease is apt to be confounded with some forms of *Leucorrhœa communis*. We must distinguish the diseases chiefly by considering the life and habits of the patient, and whether any cause has been present which was likely to bring on *Leucorrhœa*. The *Leucorrhœa*, as Dr. Good observes in his definition, stops during menstruation, which is not the case in *Blenorrhœa*. It is also said, that in women the early stage of *Blenorrhœa luodes* is marked by an unusual desire for sexual intercourse, and an itching of the labia. Pain in micturition, so common in clap, is seldom felt in *Leucorrhœa*. The nature of *Blenorrhœa* is this. A peculiar stimulus, acting on the secretants of the mucous membrane of the vagina or urethra, excites them to an action which elicits from the blood the same material as this stimulus itself consisted of. This diseased state of the secretants induces an inflammatory affection of the blood-vessels of the same part, which inflammation seems to be actually necessary to keep up the diseased secretion. *Gonorrhœa* therefore is cured in two ways. First, by reducing the inflammation, when we shall merely have secretion from laxity of vessels to contend with. Secondly, by inducing a stimulus of so opposite a kind in the diseased secretants, that they at once lose the property of secreting morbid matter. With the first view, cold applications to the external

nal surface of the penis, or *mons veneris*, act by sympathy in restraining internal inflammation: low living and keeping the penis tied up towards the belly act in the same manner. Large quantities of water or tea, and diuretics, by diluting the salts of the urine, render them less irritating, and consequently act as a sedative on the inflamed membrane when this fluid passes through it. The action of soda, in neutralizing any free acid in the urine, operates also in the same way. Under this plan, the inflammatory stage of *Blenorrhœa* generally goes off; the *pain in making water* (which is always a sign of inflammation) subsides; and a mere chronic discharge, from laxity of vessels, remains. This is curable by the use of injections, as solutions of sulphate of zinc or alum, and by the exhibition internally of *copaiba*. In very obstinate cases the *copaiba* may be applied locally, by means of a bougie. In this stage the malady is called a *gleet*, is often very troublesome, and requires frequently to have a variety of stimulants tried before any one will succeed in altering the action of the secretants.

We have before said, that certain stimulants applied even in the earliest stages of *Blenorrhœa* had the property of so affecting the secretants as to stop their secretion, and consequently the inflammation which arose out of them. Thus some patients have used astringent injections as soon as the tingling sensation at the end of the penis (the first symptom) made its appearance, and with success. This, however, is a very hazardous experiment; for, if the tendency to inflammation be, from constitutional or other causes, very strong, orchitis is apt to ensue, and prove a troublesome malady.

A more soft and efficient stimulus is the *cubeba*, a drug taken internally in doses of from one to three drachms three times a-day. This medicine sometimes indeed totally fails; but at all events never has appeared injurious, and in the majority of cases cures the *Blenorrhœa* without leaving behind it any gleet or other unpleasant symptom. If its good effects are not apparent in about a week, it is proper to leave it off, and commence the antiphlogistic plan before laid down. The tincture of *cubebæ*, combined with equal parts of the balsam of *copaiba*, is a very excellent medicine in old-standing gleets. From the above statement it very clearly appears, that *Blenorrhœa* is in itself a disease of no great danger or importance, and one which is easily cured; but it is occasionally accompanied by diseases which are the effect of an inflammatory character, and are troublesome both to the patient and the practitioner. These are, inflammation of the testicle, simple bubo, chordee, and stricture.

The inflammation of the testicle generally comes on when the discharge from the urethra is stopped, and subsides as the latter returns. It is treated in the same manner as *Emprefma orchitis* in general, which see, p. 264. The bubo which accompanies *Blenorrhœa*, does not seem, like the true venereal bubo, to depend on the absorption of matter, but rather to owe its origin to an irritation conveyed along the absorbents. This also requires the same treatment as simple bubo, which see.

Chordee is used to express an affection in which the penis is curved downwards at the time of erection, the under surface of this organ having a hard line running along, and being attended with the most excruciating pain. This symptom arises from an unusual degree of inflammation affecting the corpus spongiosum of the inferior part of the penis, which consequently is permanently contracted, and cannot follow the dilatation of the corpora cavernosa, or superior parts. Leeches to the penis or perinæum are proper, with cold bathing of the affected part when the irritation comes on. If nothing be done, the patient, after suffering the most intolerable torment for some days, is relieved by the spontaneous resolution of the inflammation, or by a rupture of vessels, from which copious bleeding and ultimate relief follow.

Stricture of the urethra is the most serious disorder

which is liable to attend on *Blenorrhœa*. It comes on, however, from other irritation besides clap; but is treated in the same way, whatever may have been its first cause. There is some difficulty in explaining what a stricture is. It has been generally supposed to be a contraction of certain muscular fibres surrounding the mucous membrane of the urethra. Mr. Shaw, in a paper in the tenth volume of the *Medico Chirurgical Transactions*, has shown, however, that the muscular structure of the urethra cannot be demonstrated in man or in the larger animals. Yet we cannot infer that contractile fibres do not exist because red muscular fibres are not found; neither can we allow, that, because they are so diminutive, they must have no power, when we consider the favourable position in which circular muscles act. Moreover it seems to us, that the complete expulsion of both semen and of urine indicates a contractile power in the urethra; and it seems also, that no other assumption explains the form of a stricture; for if, as Mr. Shaw seems to infer, it is merely an inflammatory process of the mucous membrane, we should naturally expect to find the morbid thickening on one side, and a somewhat extended surface of the membrane, and not in this peculiar round form. As far, however, as practical facts are concerned, we are quite ready to agree, that our treatment should never be directed to the dilatation of a contracted muscle, for that no stricture can arise from this cause alone. It seems probable that the irritation which exists in the mucous membrane of the urethra calls forth a spasmodic contraction of some filament of contractile fibre. It must be granted, indeed, that at first this contraction will not, on account of the weakness of the fibre concerned, impede the flow of urine. It seems to us, that this latter effect will not take place till inflammation and thickening of the mucous membrane ensue; this inflammation being viewed as a consequence of the contraction of the contractile fibre on the one hand, and the irritation the contracted portion is subjected to by the dilating force of the urine on the other. This thickening of the mucous membrane will of course be liable to some variations; it may undergo spasmodic action, in consequence of a contraction of the arteries which enter in the composition of the thickened structure; but it is in that part of the urinary canal (*viz.* the neck of the bladder) which is evidently furnished with muscle, that spasmodic stricture is most commonly found. The precise nature of the irritation that brings on stricture is not very apparent. Stricture is certainly more common in hot climates, and with intemperate persons, than under other circumstances. It is also more frequently a consequence of clap than of any other kind of urinary stimulus; but it does not seem to have any proportion to the violence of the clap. Strictures are often produced by the incautious use of injections, and are aggravated by copulation. A stricture of the urethra often produces other diseases, as a paraphimosis, or a swelled testicle.

The symptoms of a stricture are rather obscure. There is a slight diminution in the size of the flow of urine, often with a degree of twisting or bifurcation of it; and on some occasions the stream is scattered in various directions; on others it is completely stopped, or at least with the exception of a little dribbling. A discharge of thin mucus also attends, which is liable to be mistaken for a gleet. The impediment to making water is always increased by the patient's catching cold, or indulging in a debauch. A pain at the end of the glans penis is often found in strictured persons; and in old cases a variety of disorders are engendered. These are at first merely irritative diseases, as unusual irritability of the bladder, nocturnal emissions, pricking and shooting sensations about the fundament, &c. but in some cases actual inflammation of the bladder and its investing peritoneum has come on. In almost all cases, the resistance caused by a long-standing stricture causes the bladder to acquire a great increase of thickness and muscular power.

Much

Much may be learnt of the precise situation of a stricture by means of the bougie. This instrument passed down to the stricture shows its situation. The impression it receives from the stricture, when it has passed through, shows the size and form of the latter; and the resistance it meets with in passing shows the degree of the stricture. A stricture is, *cæteris paribus*, more dilatable when the body is in a state of general relaxation than at other times: this arises from the loss of contractile power which all the contractile fibres undergo; for, though it may be doubted whether a stricture dilates or contracts in itself, still it is certain, that, when irritated, a spasmodic resistance is afforded to the passage of an instrument. But we should rather refer this circumstance to the sympathetic contraction of the healthy fibres of the canal.

From the statements we have made concerning the probable structure and mode of formation of a stricture, its treatment clearly follows. Viewing the mere contraction of some contractile fibre as an action which is always antecedent to and coexistent with that resistance to the discharge of urine which we call stricture, it is obvious, that local and mechanical means of removing that contraction must be put in force, in most cases, before a cure can be effected. At the same time, the removal of the morbid thickening of the mucous membrane of the urethra by absorption should be chiefly attended to. For the former purpose, *bougies* are generally used. Of these instruments we shall speak presently. The latter is to be effected by constitutional remedies; and, when we consider the very small portion of membrane affected, and the little sympathy this membrane altogether seems to hold with the general system, we cannot fail to be surprised at the great benefit these remedies afford to the malady in question. Attention to the bowels, and to the state of the secretions in general, with mild diet and copious dilution, will often cure recent strictures without local application; and, whenever it does become necessary to use the latter, their efficacy will be diminished or increased in proportion as the general health is deranged or the reverse. Now the advantageous employment of a bougie will depend much on the manner of its introduction. The bougie should be of a sufficient diameter to resist entanglement in the lacunæ of the urethra; and the grand principle which should direct its introduction, should be to pass it through the stricture so as to dilate it, and thereby cause absorption of its membranous substance; and also relaxation of the contractile fibre, if indeed we can bring our minds to believe that that fibre has any thing to do with the continuance of a stricture once formed. If much force be used, we shall stand a chance of injuring other parts of the membrane besides the strictured one, and thereby cause much mischief. At the same time, much pressure is sometimes required to dilate a stricture. But on this head we shall not enlarge. A great deal of tact, and an attention to many minutiae, are requisite to the safe introduction of instruments through the urinary passage; and we shall defer further notice of the passing of bougie, the simple and caustic or armed, the catheter, &c. till we come to the article SURGERY.

It must be remembered, that, when the simple bougie has failed, caustic has been applied to the urethra with success. Used as an agent which is to eat through a stricture, and consequently employed of great strength, it has no doubt often done harm. Viewed as a local stimulus which excites the injured part to ulceration and absorption, and consequently used in *weak proportion*, and in such a manner as to ensure its exact application to the strictured surface, and to that only, we will venture to assert, that it is a valuable auxiliary to the treatment of this troublesome disease.

3. *Blenorrhœa chronica*, gleet: slimy discharge from the mucous glands of the urethra, without specific venom or infection; slightly irritating; chronic. (*Gonorrhœa mucosa*, *Cull.*)

Mostly a sequel of the preceding; and usually accom-

panied with stricture or enlarged prostate gland. Though without specific venom, occasionally so acrimonious, as to produce great local inflammation on the person cohabited with, while the secreting organ which has undergone the morbid change is torpid, or nearly so, to its virulence. Its treatment has already received due notice under the preceding species.

Genus IV. *Spermorrhœa*, [from *σπέρμα*, seed, and *ῥέω*, to flow.] Involuntary emission of seminal fluid without copulation. There are two species.

1. *Spermorrhœa atonica*, (*Gonorrhœa libidinosa*, *Saur.* *G. laxorum*, *Cull.*) Involuntary emission of a dilute and nearly pellucid seminal fluid; with libidinous propensity, but without erection. The last symptom is, however, not always observable.

This disease is generally accompanied with much mental disturbance; lowness of spirits, in a remarkable degree, generally attending it. It seems most commonly to owe its origin to the indulgence of solitary vice, and is extremely difficult of cure. This may however be effected, in less severe cases, by stating to the patient the dangerous consequences of his vicious propensity, and cautioning him to resist at all times the first approaches of sensual ideas. In violent cases it is absolutely necessary to combat the disposition for solitude by every kind of dissipation; and indeed it may be a question whether it might not be allowable to lead the sufferer into the haunts of libidinous females rather than suffer this much more dangerous disease to gain ground. The writer of this article once attended a young man, over whose mental energies this horrible propensity acquired so extreme an influence, as to induce, on repeated occasions, attempts at suicide. Advice was thrown away upon one in whose bosom religious feeling was strong, and who nevertheless abandoned himself to this vice in utter despair of overcoming it. Nor could the less-excusable measure of inculcating *natural sin* be used with one whose copulative desires failed on the approach of a female. Two or three furious attempts at self-destruction induced the writer to adopt bleeding; and for the bad state of the bilious secretion he was obliged to prescribe calomel. The success of the depletory plan caused it to be continued frequently; and, the calomel being persisted in, the mouth became affected with violent ptyalism. After this, the patient returned to his profession (the law) with renewed health and spirits, and has never since been afflicted with this malady. The above case is narrated as a curious one; but the practice is by no means held out to general example.

When this disease is merely local, it probably is inflammation of the epididymis. Counter-irritation by blisters to the perineum, with occasional bleeding, generally cure it.

2. *Spermorrhœa entonica*: involuntary emission of proper semen, with erection; mostly from indulgence of libidinous ideas.

This species is not worthy of particular consideration; it seems rather an effort of nature to relieve glandular fullness than a disease, and is not of frequent occurrence or of dangerous consequence. Indeed a famous physiologist has asserted that it is a perfectly natural and salutary process.

Genus V. *Galactia*, [from *γάλα*, milk.] Morbid flow or deficiency of milk. Five species.

1. *Galactia anticipans*: efflux of milk during pregnancy. A pint and a half has sometimes been poured forth daily as early as the fifth month. *Saur.* ii. p. 412. See also *Timæus* *Caf.* p. 220.

2. *Galactia impotens*: inability to suckle upon childbirth. Two varieties.

α. *Atonica*; from want of secretion.

β. *Organica*; from imperfect nipple, or other organic defect.

3. *Galactia*

3. Galactia depravata; efflux of a dilute or vitiated milk. Two varieties.

α. Serofa; weakened by too large a proportion of serum.

β. Complicata; deteriorated by intermixture with some foreign material.

See Ephemer. Nat. Curios. in which we have examples of a flow of black, green, and yellow, milk. Probably in most instances discoloured by an union with effused blood. Occasionally the quality betrays its source. Of the nature of beer, or of wine. See Eph. Nat. Cur. Dec. i. ann. iv.

4. Galactia erroris: transferred to, and discharged or accumulated at, remote organs, often under a different form. Here we have eight varieties.

α. Transferred to the fauces; and discharged in the form of a pytalisin. Puzos. Ephemer. Nat. Curios.

β. Discharged from the general surface of the mammæ in the form of sweat. Idem.

γ. Discharged from the navel. Sauvages.

δ. Discharged from the kidneys in the form of urine. Journ. de Med. 1758.

ε. Discharged from the eyes in the form of a milky epiphora. Sauvages.

ζ. Discharged from the thigh on scarification. Weikard, Verm. schr. i. 47.

η. Discharged from the veins on bleeding. Sauvages.

θ. Discharged from the vagina. Journ. des Scavans, 1684. Paullini Obs. cent. i.

Like the menstrual flux, there is scarcely an organ to which it has not been transferred. "The blood during the time of suckling is often loaded with milk, and evinces a milky appearance; as are also several of the fluids secreted from the blood; and hence probably many of the above peculiarities." Good's Nosology, p. 337.

5. Galactia virorum: secreted in males, and discharged from the proper emunctory. See Collectio Acad. iii. p. 63.

"A milky serum often distils from the nipples of newborn babes of both sexes: but various authors, as Scholtz, P. Borelli, Lauremberg, have given cases of genuine milk discharged in like manner by adult males; occasionally continuing for a long time; and in some instances enabling them to perform the office of nurses." Good ut supra.

Order II. ORGASTICA, [from *orgasm*.] Diseases affecting the Orgasm. Organic or constitutional infirmity, disordering the power or the desire of procreating. This order contains six genera.

Genus I. Chlorosis, [from *χλωρος*, green.] Green Sickness. Generic characters—Pale lurid complexion; languor; listlessness; depraved appetite and digestion; menses.

1. Chlorosis plethorica: habit plethoric; pain in the head, back, or loins; frequent palpitations at the heart; flushes in the face; pulse full, tense, and frequent.

The orientalists, and especially the Persians, make a male variety of this species, which they call bimariy kodek, or *morbus puerorum*, and is designed to include the affections which often peculiarly mark the stage of puberty.

2. Chlorosis inops: habit debilitated; great inactivity and love of indulgence; dyspnoea on moving; lower limbs cold and edematous, especially at night; pulse quick and feeble.

Both these species of Chlorosis have already received due notice. The former under *retention* of the menses; the latter under *Limosis dyspepsia*, p. 139.

Genus II. Præotia, [from *πρως*, premature.] Premature development of sexual organization or power. Two species, of course.

1. Præotia masculina: development of sexual precocity in males. See Journ. des Scavans, 1688. Leske Auf. Abhandl. Band. ii. p. 354. Various cases, and particularly that of Philip Haworth in his second year, in the Me-

dico-Chir. Transf. vol. i. p. 276. A boy has been for some time past shown in the neighbourhood of Leicester-square, who is a surprising example of Præotia. At six months old signs of puberty appeared, and at three years of age (when the writer saw him) the parts had attained both in magnitude and in external appearance the form of manhood.

2. Præotia feminina: development of sexual precocity in females.

Cases.—Menstruation in infancy common. See Plouquet.—Pregnancy at nine years of age. Ephemer. Nat. Cur. Dec. iii. ann. ii. obs. 172.—See a second case at the same age; Schmid. Ed. Helvet. iv. 167. and again, in Germany, G. E. von Haller, in Blumenbach Bibl. i. 558.—See also Eccyefis ovaria, Ord. iii. Gen. ii. of the present class, Dr. Baillie's case.—Two cases are given in the Medico-Chir. Transf. vol. ii. 115, by Dr. Wall; and vol. iv. 204, by Mr. Astley Cooper. See, for other instances, Haller's Elem. Phys. lib. xxviii. sect. iii. Kundman, Rar. Art & Nat. p. 823, &c. &c.

Genus III. Lagnefis, [from *λαγνής*, lascivious.] Inordinate desire of sexual commerce, with organic turpescence and erection. (Nymphomania, Satiriasis, Sauv. et Auct. recent.) Two species.

1. Lagnefis falacitas, falacity: appetency capable of restraint; excitation chiefly confined to the sexual system. Four varieties.

α. S. pubertatis, of puberty. Excess of stimulus produced by the season of adolescence.

β. S. senilium, of old age. From local irritation, produced by debility, or topical malady; as diseased ovaries; calculus in the bladder or kidneys; leucorrhœa; or inflammation of the womb, or neck of the bladder.

See a singular case by Mr. Norris in the Transf. of the Medical Society, vol. i. produced by a blow received a few months before near the prostate gland, followed by a small, but nearly-indolent, tumour on the part affected. The patient was a married man of sixty-seven; and during the violence of the erethismus, from local irritation, which had continued for two months, was reduced to a state of the most wretched and squalid emaciation. The following are Mr. Norris's words: "Nunquam memini, inquit ægrotus, me in venerem propensiores fuisse, nedom insanâ et insatiabili libidine permutum, ante hos duos menses, quando me diro hoc et teterrimo correptum esse morbo sensi; cuius vi tanta est et tam effrænata, ut expleri nequeat; et ad coitum cum uxore me singula nocte, quindies saltem, imo vices nonnunquam, impellat. Hic vero cum ægrotantem meum priapismo laborantem se fallere augurabar, et fortasse, nullâ seminis jacturâ in venerem ruere, paulo curiosius id ab illo quævisi. Affirmat autem se vix in lecto decubentem corpus uxoris contingere, cum tanquam cæstro percitus, in repetitam venerem properat, neque unquam nisi pleno coitu res peragitur: seminis quidem emissio potius angere quam voluptatis afficere visa est." The wife, a matronly woman of great modesty, was herself hereby rendered extremely ill from local inflammation. By supporting the system with tonics, and bringing the tumour to suppuration, the disease was effectually cured.

γ. S. plethorica, from plethora, or tonic action; especially in a sanguine temperament.

δ. S. ad assuetudine; from habit or immoderate indulgence. The collectors of medical curiosities give various cases of divorce, obtained against a husband on account of ungovernable falacity. See Eph. Nat. Cur. Dec. ii. ann. ii. obs. 121. Plater Obs. lib. i. p. 257. Riedlin. Lin. Med. 1697. Timæus, 52.

2. Lagnefis furor: appetency unbridled, and breaking the bounds of modest demeanour and conversation; morbid agitation of body and mind. Two varieties, of course.

α. Masculinus, in males. Pollutiones centum per diem. Bartholin Epist. iii. p. 145.

β. Fæmininus, in females. (Nymphomania furibunda, Furor uterinus, Auct. Var.)

The symptoms of this dreadful disease are too apparent to require us to enter into its disgusting history. From the slight lascivious manifestations of leering and sighing, the female ultimately passes to a state of the most distressing and shocking intemperance of voice and manner, so much so, indeed, as to lose all modesty, to expose the naked body, and plainly solicit from strangers the act of copulation. Nothing that we are acquainted with has been done for the cure of this malady; but every circumstance of dissection tends to show, that it is the effect of a morbid secretion on the vaginal nerves. We should therefore use every means to change the action of these secretants. With this view, injections of belladonna and the salivation of the system with mercury, hold out some prospect of relief. Those to whom this subject is interesting, will find much information, delivered in a very florid style, in Dr. S. Wilmot's translation of Bienville's work on *Furor Uterinus*. In this treatise the superacutate of lead in the usual doses is strongly recommended.

Genus IV. *Agnesia*, [from *α*, priv. and *γινωμαι*, to beget.] Impotence, or male sterility. (*Anaphrodisia*, *Sauv.* and *Cull.*) Three species are noted.

1. *Agnesia impotentia*: imperfection or abolition of generative power. Two varieties.

α. I. atonica; from imbecility or want of tone. Chiefly produced by excess of indulgence; long-continued gleet; or paralytic affection of the generative organs.

β. I. organica; from morbid organization, natural or accidental; as amputated, injured, or enormous, penis; testes impaired or destitute.

Albinus gives a case of divorce obtained against a husband from inability to enter the vagina, *ob penem enormem*. Plater relates another from a similar cause.

2. *Agnesia dys-spermia*: imperfect emission of the seminal fluid. (*Dyspermatismus*, *Sauv.* and *Cullen*.) Six varieties.

α. D. *tonica*; from super-erection, or priapism.

β. D. *epileptica*; from incursion of an epileptic spasm produced by sexual excitement during the intercourse.

γ. D. *anticipans*; discharge ejected hastily, prematurely, and without due adjustment.

δ. D. *ignavis*; discharge unduly retarded from hebetude of the genital organs.

ε. D. *refluens*; the discharge thrown back into the vesiculae feminales or the bladder before it reaches the extremity of the penis.—*Semen retrogradum in vesicam ex angustatione urethræ*. *Petit Mem. de l'Acad. de Chirurgie*, tom. i. p. 434. See a curious case by Mr. Home in the *Phil. Transf.* 1795.

ζ. D. *organica*; the discharge obstructed by mechanical pressure; as that of stricture or hardened mucus in the urethra; indurations in the corpora cavernosa; or a prepuce nearly imperforate. This is, of course, the only variety capable of cure. The indications for this purpose are obvious enough.

3. *Agnesia incongrua*, doubtful impotence: the seminal fluid inaccordant, in its constituent principles, with the constitutional demand of the particular female.

Genus V. *Aphoria*, [of *α*, priv. and *φερω*, to bear.] Barrenness, or female sterility; 1. e. inability to conceive offspring. Five species.

1. *Aphoria impotens*: imperfection or abolition of conceptive power. Of two kinds, or varieties.

α. *Atonica*; from imbecility or want of tone, as in the preceding genus, sp. 1.

β. *Organica*; from organic defect, whether natural or accidental, as imperforate vagina, defective fimbriae, or ovaria; want of ova, &c.

An imperforate vagina does not always preclude conception. It has taken place where the vagina itself has been so narrow as not to admit the penis. *Ephem. Nat. Cur.* Dec. iii. ann. vii. viii. obs. 83.—Where, with the same impediment, a rigid and unbroken hymen has of-

fered an additional obstacle. *Hist. de l'Acad. de Paris*, 1748. An imperforate hymen does, however, in the majority of cases, preclude conception. For the mode of perforating this membrane, see SURGERY.

2. *Aphoria paramenica*, barrenness from mis-menstruation. Three varieties.

α. *Obstructionis*; produced by menostation, or retention of the catamenia.

β. *Difficilis*; produced by laborious secretion.

γ. *Superfluitatis*; produced by profuse discharge.

The means before laid down for the treatment of obstructed, painful, or profuse, menstruation, must of course be used when we wish to remove barrenness produced by these maladies.

3. *Aphoria impercita*; barrenness from personal aversion or want of appetency.

4. *Aphoria incongrua*: the conceptive power irresponsible to the constituent principles of the seminal fluid received; as in the preceding genus, sp. 3.

5. *Aphoria polyposa*: the cavity of the uterus or vagina, or both, so filled and obstructed by a polypous excrescence as to preclude the action of the seminal fluid. See Baillie's *Morb. Anat. Fasc. ix. pl. 4.* See also the next genus, sp. 5.

Genus VI. *Cedoptosis*, [from *κεδω*, the genitals, and *πτωσις*, fall.] Protrusion of one or more of the genital organs, or of excrescences issuing from them, into the genital passage; impairing or obstructing its course. (*Hysteroptosis*, *Sauv. Vog. Sag.*) Five species.

1. *Cedoptosis uteri*, protrusion of the uterus into the vagina. (*Prolapsus uteri*, *Procidentia uteri*, *Auct. Var.*) Three varieties.

α. *Simplex*; the uterus retaining its proper posture and figure. Different names are frequently given to different degrees of this variety. If the descent be only to the middle of the vagina, it is called *relaxatio uteri*; if to the labia, *procidentia*; if lower than the labia, *prolapsus*.

This dislocation of the uterus may take place from two causes. The first, relaxation of the broad and round ligaments of the womb; the second, relaxation of the muscular coat of the vagina. These two causes are commonly united. Whatever debilitates the body generally, or more particularly the vaginal structure, may cause relaxation of the vagina. Hence, among general diseases, we may reckon severe hæmorrhages, and long-continued dyspeptic ailments; and, among particular ones, leucorrhœa and excessive vomiting. It is pretty obvious, however, that relaxation of the vagina would not be sufficient to bring on procidentia uteri, except in the most trifling degree, unless the ligamentous connexions of the uterus were also weakened. Now, as to the causes of this latter affection, it seems, when we consider how little the ligaments seem to suffer in general debility of the constitution, that constitutional malady cannot very suddenly or generally induce it. It is to mechanical injury, therefore, that procidentia is commonly traceable. Thus blows may sometimes bring it on: more generally, however, it follows parturition, when the ligaments, in a stretched and weakened condition, are prevented from recovering their natural dimensions in consequence of the imprudent practice of rising from bed early after confinement; a practice the more prejudicial, not only because at the period in question the uterus is more loosely connected and of much greater weight than usual, but because the vagina is more relaxed, and consequently offers less resistance to the descent of this viscus.

In the beginning of this disease, the falling of the womb is often very slight. The natural projection of the cervix uteri into the vagina is about one inch; the distance between the os externum and os uteri is about four inches; and, when the os uteri has approached but one inch lower, we meet with very troublesome symptoms. Among the earliest of these is a pain in the back,

a symptom which often continues a long time without any other. In more advanced stages, this pain is described as of a bearing down or dragging kind, as if a weight dropping into the top of the vagina; pain in the groins extending towards the labia is also felt, with a transparent vaginal discharge, and a sensation of fulness in all the parts of generation. Strangury likewise is occasionally present; and a separation of the bones of the pelvis has been met with by Mr. Clarke in one case. The sympathy between the uterus and stomach also gives rise to much abdominal irritation. Anorexia, borborygmus, lowness of spirits, and languor, are very remarkable. The bowels are irregular in their action; and this state of disorder, re-acting on the uterine secretions, so far impairs their powers, that they admit red blood, and hemorrhage sometimes takes place. Hiccough also sometimes attends this malady.

As most of the above-mentioned symptoms may be simulated by other maladies, it is indispensably necessary, when procidentia uteri is suspected, that we should make a manual examination. As the uterus goes up to its natural situation, in early cases, when the patient lies down, it is obvious that the only posture in which we can place her, to gain any information from examination, is the erect one. We need scarcely advert to the delicacy of touch which even in these circumstances will be required on the part of the practitioner; a tactus eruditus only to be learnt, however, by very accurate information concerning the structure of the parts, and still more by midwifery practice. When the cervix uteri has fallen down as low as the external labia, it often rests on the perineum, and the disease remains stationary. In making this descent however, and still more as the uterus begins to form an external tumour, the dragging of this organ on the peritoneum exerts a very injurious influence on the abdominal viscera; and from the same cause chronic and sometimes acute inflammation, ending in adhesion, has been known to attend this disease.

Besides impairing the functions, it also very materially alters the structure, of the intestines and of the bladder: the rectum, instead of taking the sweep of the sacrum, first dips down into the tumour, and afterwards ascends into the pelvis; the fallopian tubes and ovaria are dragged down with the uterus, as are also the small intestines and omentum; the former of which fill up part of the tumour when it becomes external to the body. Under the same circumstances, the bladder, falling into the tumour, drags down the meatus urinarius, and so far alters the direction of this passage, that, in order to introduce a catheter, it will be necessary to hold the instrument almost horizontally. Months and even years often elapse whilst the uterus is making its descent. While the procidentia is internal, a very profuse mucous discharge sometimes comes from the vagina. When this happens, the patient suffers great debility. When, however, the uterus has fallen out of the body, the mucous membrane of the vagina loses its secreting disposition, and from exposure to air, and from the stretching it suffers from the tumour, takes on the appearance of external skin, loses its rugæ and its nervous irritability, sensible indeed to pressure, but not to sexual desire. After a time, the prolapsed part, especially the cervix uteri, becomes affected with spots or patches of ulceration. These, however, are not deep, and seldom of an unhealthy character: they readily heal on the replacement of the tumour in its natural situation.

Other tumours are met with in the same situation as prolapsus uteri; but the latter disease is distinguished from all others by the *horizontal*-opening of the cervix uteri; a mark which, contrasted with the *perpendicular* opening of the urethra in the male subject, has served to detect the imposture of those who, having a prolapsus uteri unusually oblong, have endeavoured to impose on credulity by the assumption of an hermaphrodite formation.

In the treatment of this disease, we have two indications to perform. The first is, to get the uterus back into its natural situation; and the second to keep it there. In early cases, the first indication is effected by merely putting the patient in a recumbent position, this being attended with a remission of all painful symptoms. In the early stages of this disease, all therefore that will be necessary for the first indication will be to keep the patient generally lying on a mattress (in the day-time on a sofa), and obviating all muscular movements likely to press on the uterus; as coughing or straining at stool. The indications of strengthening the relaxed state of the vagina embrace a wider field. It is obvious to every one, that, if the muscular system be in a weak state generally, it is quite impossible to render any one muscle strong by local applications. Now, as it is the muscular structure of the vagina which we here wish to operate upon, we must attend to the state of the muscular system throughout the body. The diet must be regulated in such a manner as to have the most perfect assimilation: warm drinks, as tea, &c. forbidden; the bowels kept open by the mildest laxatives, and the cold bath used regularly. We need not dwell upon the concomitant disorders which will prevent the use of the cold bath; these having been so often adverted to. We have before stated as a general rule, that this measure is never to be persisted in unless followed by re-action. A shower-bath impregnated with salt is useful for persons of good stamina, when the simple bath loses some of its influence. Medicines of the tonic kind, as improving the digestive powers of the stomach, are also recommended; as bark, gentian, &c. It is desirable to join with these, medicines which have a power of astringing the vessels of the mucous membranes. We are rather sceptical as to the control of any particular medicine over local disorders, except when applied directly to the structure affected; but it is stated on respectable authority, that certain medicines taken into the stomach do relieve relaxation of the vagina, a circumstance referrible, of course, to the known sympathy which exists between the stomach and the mucous expansion in general. Cinchona and sulphuric acid is a formula much employed. In persons much debilitated it will not be found safe to use the cold bath so frequently, or to give such powerful astringents as we have recommended above; but of course all rules of this kind must vary with particular circumstances.

In early stages of procidentia, the sponging or dashing of cold spring or salt water on the loins and pudenda, and the injection of astringent lotions, are the local means to be chiefly relied on. The astringent applications are to be applied to the interior of the vagina by means of a syringe, to the construction of which it behoves the practitioner to pay some attention. The pewter instruments in common use are many of them next to useless; it is indispensable that the pipe present a sufficient curve to allow to use the instrument with ease; that the piston is perfectly adapted to the barrel, and moves with celerity; and that the holes at the extremity of the pipe are small, and situated at the point, and not laterally. The astringents best recommended are, a mixture of solutions of alum and sulphate of zinc, or one or both of these salts dissolved in a decoction of oak-bark. These applications should be thrown up twice or three times a-day.

When procidentia uteri is so far advanced as to render the attempt at reduction by the above-mentioned measures useless, we must endeavour to give mechanical support to the displaced uterus. For this purpose an instrument called a *peffary* is used. It is various in form and substance. The form must vary with the stage or peculiarity of the complaint. The most proper substance at present used for the formation of a peffary is *box-wood*. The *circular* peffary is adapted to those cases in which the disease has not made great progress, and where the relaxation of the vagina is not considerable. Its adaptation to the

the exact size of the vagina is a matter of great moment. We have before shown, that the contraction of the vagina is one of the means by which the disease is cured. It is therefore obvious, that any substance which would prevent this contraction, or would in the slightest degree dilate the canal, must be improper. At the same time the pessary must be large enough to fill the canal, or it will slide out of it. Dr. Clarke states, that it is seldom proper to use a pessary of more than two inches and a half in diameter, on account of the pressure it would exert on the *meatus urinarius* and rectum. When, therefore, the calibre of the vagina is larger than these proportions, it is proper to use the *oval* pessary, which, as its long diameter rests transversely in the vagina, may receive support from the sides of this canal, without pressing on the urinary passage before, or the rectum behind. Should the vagina be so dilated that a smaller one cannot be retained, we may use an oval pessary nearly as large as four inches in its long diameter. The chief objection to this instrument is, that it is disturbed by sexual intercourse. This objection is of the more force, because pregnancy is a desideratum in *procidentia uteri*, inasmuch as the ascent of the womb during that state cures the disease.

The following are the directions for passing these instruments, given by Mr. Clarke in his *Observations on the Diseases of Females*. The woman should be placed upon her left side, and close to the edge of the bed; and her knees should be drawn up towards the abdomen. The practitioner is then (having previously examined the size of the vagina) to select a pessary, according to his judgment, of a proper size. This instrument is then to be covered with some simple unctuous matter; and, if its form be circular, it is to be placed between the labia, so that one edge will be turned towards the os pubis and the other to the rectum: it is then to be moved in a circular direction on its own axis, pressing it at the same time towards the perineum, till it has fairly entered the vagina. As the instrument passes the edge of the external parts, some little uneasiness is always felt by the woman; but this ceases as soon as it has reached the vagina, to the upper part of which it is to be carried, and it is to be so placed that the uterus may rest upon one of the broad surfaces of it. The instrument is now to be left in the vagina, and a syringe full of some cold astringent injection should be thrown into the parts, to give tone and contraction to the dilated os externum, as, in cases where the vagina is very much relaxed, it may make a smaller pessary answer the purpose of support than would be required if no such means were resorted to. Whatever may be the shape of the pessary introduced, the woman should continue for some minutes in the recumbent posture.

An oval pessary requires great care in the mode of introduction, and is either a very good or a very bad instrument, according as it is well or ill applied. In the choice of it, the size of the vagina is to be first compared with that of the instrument, the extremities of which should not be too acutely pointed, lest they should injure the parts. The instrument being covered with some unctuous substance, one end of it is to be placed between the labia, with the short diameter running from before to behind; and in this direction it is to be carried up into the vagina. The practitioner is then to insert the point of his fore-finger into the opening in the centre of the instrument, and to place it across the vagina so that the extremities may be turned towards the spinous processes of the os ischium: if the direction of the opening in the pessary is made to correspond with that of the long diameter itself, this will be easily accomplished. The pessary is now to be passed as high into the vagina as it can be without giving pain, and to be left there.

Procidentia uteri sometimes occurs in women whose perinæum has been lacerated to a great extent in labour; in such a case, neither the circular nor the oval pessary can

be retained; but the sacrospinous ligaments and the os coccygis will sufficiently contract the lower aperture of the pelvis to enable a globular pessary to be retained. This pessary, pressing equally in all directions, is very conveniently borne; and it may be used for widows who have lost the catamenia with great advantage. The size of the instrument being adapted to the capacity of the parts, its surface is to be covered with unctuous matter as before, and it is to be placed between the labia; by a gentle pressure it is to be carried into the vagina, giving a degree of rotatory motion to it as it passes along, which greatly facilitates the introduction.

In those cases in which the tumour protrudes out of the body, it is obvious that this must be reduced before the pessary can be made use of. Previous to attempting the reduction of a completely-prolapsed womb, we must enquire whether at any period of the disease inflammatory symptoms have been manifest; as for instance, lasting and acute pain, with thirst, heat, small pulse, abdominal tenderness, vomiting, &c. because, if these symptoms have been present, there will be much reason to fear that the peritoneum has contracted adhesions which it would endanger the life of the patient to break through by any forcible attempt at reduction.

When tumours on or above the uterus are the cause of this displacement, it will seldom be advisable to reduce the womb. In fact, all prolapses in which the effort at reduction is attended with much pain, should be abandoned. When it is determined, however, to reduce a prolapsed uteri, the bladder and rectum must be emptied of their contents: the patient must then be laid on a bed with her hips much raised, that the abdominal viscera, which are dragged down into the cavity of the pelvis, may not oppose, by their weight, the return of the womb. The patient being now directed not to strain, or in any way to act with her abdominal muscles, the practitioner is to apply his finger and thumb to the lower part of the tumour, where the os uteri is situated; and, by a gentle pressure, this is to be carried up into the centre of the tumour itself. This done, the same pressure is to be continued, and the parts are to be returned into their proper place in the pelvis. A pessary is then to be introduced into the vagina; and the patient should continue to lie upon an inclined plane, with the hips elevated, for several hours. In almost all cases in which the degree of the disease is considerable, every pessary which can be introduced will be forced away by the slightest efforts of the woman: even the globular pessary (which is the best) will not be retained, neither can it be kept in the vagina by any common bandage. But by the following contrivance the globular pessary may be kept in the vagina. In the first place, a pessary is to be chosen of the size which the case requires, and a small slip of brafs is to be attached to it by its two ends, leaving a space between the instrument and the centre of this piece of brafs: a belt of leather, long enough to go round the patient's body, is also to be prepared; to the centre of which, behind, a brafs wire, as thick as a common quill, is to be attached by a screw. This wire is now to be properly bent; and, the pessary being introduced into the vagina, the wire is to be passed between the pessary and the piece of brafs attached to it; and, being brought up between the thighs, it is to be attached to the fore part of the circular strap. The reduced parts are by this means supported by a pessary, and this is kept in its place by the unyielding piece of metal.

When a separation of the ligaments of the pelvic bones has taken place in conjunction with a prolapsed uterus, the patient must wear, in addition to the measures before noticed, a broad circular belt passed pretty firmly round the hips: this of course answers the same purpose as an artificial ligament, and moreover facilitates the re-union of the lacerated or lengthened stricture. Strangury requires the usual treatment.

β. Retroverſa, retroverted womb: the uterus diſplaced, the lower part becoming the upper. Moſtly limited to a ſtate of pregnancy.

γ. Inverſa, inverted womb: the uterus diſplaced, and turned inſide out.

This complaint conſiſts, as the name imports, in an inverſion of the cavity of the uterus, ſo that the fundus comes through the os uteri; conſequently that part which formerly was the inſide of a cavity is converted into the outſide of a tumour, either contained in the vagina or projecting from it. In the preſent improved ſtate of the art of midwifery, this diſeaſe is very ſeldom met with, becauſe it is generally a conſequence of violently pulling the funis for the purpoſe of extracting the placenta. The weight of a large polypus has been ſaid to have inverted the womb; but this is a very rare caſe.

As inverſion of the uterus is (ſtrictly ſpeaking) to be conſidered as one of the immediate conſequences of delivery, (ſee PARTURITION;) no admiſſion would have been given to it in this article, if it were not that it is occaſionally met with in the chronical ſtate attended by a mucous diſcharge. It may be neceſſary to remind the reader, that the removal of the placenta (if adherent), and the immediate replacement of the uterus, are to be effected as ſoon as poſſible when this accident has occurred during labour. The ſymptoms of the chronic ſtate of inverſio uteri reſemble thoſe of procidentia uteri; and, an examination being made, a tumour is found either in the vagina, or hanging out of the external parts. Such a tumour may be miſtaken for polypus; but, in the latter diſeaſe, the os uteri encircles the neck of the tumour; in inverſion of the uterus, the os uteri forms a part of the tumour itſelf. Moreover, the inverted uterus is ſenſible: polypi of the uterus, on the contrary, are void of feeling. The tumour may be miſtaken for procidentia of the uterus; but the difference may be detected by obſerving that there is no opening at its lower part, and by its ſurface ſecreting the catamenia at the regular periods. It is diſtinguiſhed from procidentia of the bladder by being much more reſiſting, by its ſize continuing always the ſame, and by the impoſſibility of finding the uterus behind it. Whiſt the inverted uterus remains in the vagina, the diſcharge (excepting at the period of menſtruation) will be of a mucous kind; but, if the uterus falls lower, ſo as to protrude beyond the external parts, the expoſure of that ſurface, which in a natural ſtate lined the cavity, to air, as well as to occaſional injuries, may induce inflammation and ulceration over a part or the whole of its ſurface; and the mucous diſcharge may be changed to one of a purulent kind, ſo conſiderable in quantity as to debilitate the conſtitution, and to cauſe all the common ſymptoms of weakneſs. If there are any ulcerations upon the ſurface of the upper part of the tumour formed by the inverſion of the vagina, they will be circumscribed, and rarely cover its whole ſurface. In a caſe where the uterus has been long inverted, and lies in the vagina (the latter cavity having undergone no change except from diſtention), it will not be adviſable to recommend any other remedy than the injection of ſome very mild aſtringent fluid, three or four times a-day, into the vagina. Some reſtraint will be thus placed upon the quantity of the diſcharge, and the parts will be kept clean by it. There is an extreme degree of diſeaſe where the uterus (previously inverted) falls out of the body, drawing down with it the vagina, and where the woman is becoming every day more and more weak from the quantity of the diſcharge. Caſes of this kind can receive very little benefit from external application, and indeed are only to be treated by palliative medicines, as narcotics and anodyne applications, unleſs indeed the patient ſhould have paſſed the menſtruating age; in which caſe, ſeeing that her comfort is deſtroyed by the diſeaſe, and that the profuſeneſs of the diſcharge perhaps threatens her with death from the debility which it produces, it may be adviſable to recommend the performance of an operation, which has in many caſes been

attended with ſucceſs, even in aged perſons. This operation is the removal of the inverted uterus itſelf. See SURGERY.

2. Œdoptoſis vaginæ: protruſion of the upper part of the vagina into the lower. This, like the deſcent of the uterus, may, according to the degree of the diſeaſe, be relaxation, procidence, prolapſe, or complete inverſion.

The moſt common cauſe of this diſeaſe is an habitually coſtive ſtate of the rectum, in conſequence of falſe delicacy poſtpoſing the period of natural evacuation. Thus the rectum acquires ſo inordinate a capacity as to preſs in a very great meaſure on the ſurrounding parts. As this preſſure cannot diſplace the bones of the ſacrum, its effects are exerted on the part where there is leaſt reſiſtance; viz. the back of the vagina; and hence an actual pouch is formed at this part, which of courſe drives the membrane out of its natural ſite. The falling-down of cyſts of diſeaſed ovaries between the rectum and back of the vagina, operate in the ſame manner in producing this diſeaſe. A tumour ſlightly external, a trifling degree of pain in the back, a ſlight diminution of the tumour when the patient lies down, with a diſcharge of transparent mucus from the vagina, are the ſymptoms of the malady. By the introduction of the finger in ano, the pouch above deſcribed may alſo be felt.

The treatment of the diſeaſe follows ſo obviously, that little need be ſaid. To evacuate the rectum by ſaponaceous clyſters, or, if theſe do not ſucceed (which is ſometimes the caſe), by the introduction of the finger and a ſcoop in ano, is the firſt thing to be done. The bowels muſt be kept always open by mild cathartics, and a globular peſſary introduced into the vagina, for the purpoſe of ſupporting the vagina and reſtoring the natural diameter of the rectum. Cold aſtringents ſhould be thrown into the vagina; and cold bathing, eſpecially of the loins, uſed externally.

3. Œdoptoſis veſicæ, protruſion of the bladder into the urethra.

This diſeaſe, which has often been confounded with procidence of the uterus or the vagina, and conſequently miſtreated, conſiſts of a falling-down of that part of the bladder which lies poſterior to the entrance of the urinary paſſage. In making this deſcent, the bladder carries the vagina along with it, and, in very bad caſes, the anterior lip of the cervix uteri; the latter indeed to ſuch a degree, that the os uteri has been found to open directly backwards, and lying in contact with the poſterior part of the vagina. As in procidentia uteri, the bladder may deſcend a little only from its natural ſite, or it may form a large external tumour projecting from the labia. Procidentia veſicæ is attended with a ſlight degree of pain, deſcribed by the patient as a bearing-down. This is aggravated by the recumbent poſture: hence the patient is much affected with it during the night, at which time alſo ſhe experiences frequent calls to paſs her urine. A ſenſe of tightneſs and pain is alſo referred to the navel; and both this pain and the bearing-down are increaſed by fulneſs of the bladder and relieved by its emptineſs, though perhaps the latter is never complete; for it ſeems that the prolapſed bladder loſes its contractile power, and hence that portion of this viſcera which forms the tumor generally contains ſome water. A mucous diſcharge, ſometimes ſmall and ſometimes very profuſe, attends this diſeaſe.

On examination with the finger, a tumor will be found in the vagina, diſtinguiſhed from procidentia uteri by the abſence of the mouth of the uterus, the anterior lip of which, as we before ſaid, is often found ſtretched down with the bladder. It is diſtinguiſhed from that and from all other diſeaſes of the parts in queſtion, by the evident fluctuation of contained fluid, unleſs indeed we except encyſted tumours, which are diſtinguiſhable however by their uniformity; for, of courſe, theſe are not leſſened in ſize by the expulſion of the contents of the bladder, as is the caſe in procidentia veſicæ. The diſplacement of the bladder

bladder is rarely attended with the gastric disturbance so common and so severe in *procentia uteri*. It is only when the exposed state of the bladder has induced disease of its structure, that constitutional disturbance becomes severely manifested. Relaxation of the vagina and pressure on the bladder cause this disease; hence it occurs after labour, and especially in those women who have borne many children: hence likewise violent coughing and the lifting of heavy weights have frequently brought it on.

Little need be done in the way of constitutional treatment. The rectum should of course be kept empty; and most particular attention should be paid to keep the bladder as empty as possible by frequent endeavours on the part of the patient. Of course all coughing and straining must be prevented. The treatment further than this consists in removing the relaxed condition of the vagina by astrigent injections and the cold bath, and in keeping the bladder in its place by means of a pessary. This instrument may be either of the oval or globular form, according as the one or the other gives least inconvenience. Whichever is worn should be perforated by four holes for the purpose of introducing silk, by means of which the instrument may be displaced when necessary. Dr. Good makes two varieties of this disease.

α. *Tunicis interioris*; the inner membrane being protruded.

β. *Colli*; the neck of the bladder being protruded.

4. *Oedoptosis complicata*: protrusion of different organs complicated with each other.

α. *Utero-vesicalis*; of the uterus dragging the bladder along with it.

β. *Vagino-vesicalis*; protrusion of the vagina dragging the bladder along with it.

In these cases, the reduction of the separate viscera being effected, they are to be retained in situ by means of the pessary.

5. *Oedoptosis polyposa*: polypous excrescence in the course of the genital avenue; soft, compressible, red or reddish. Two varieties.

α. *P. uteri*; issuing with a slender root from the fundus of the uterus, and more or less elongating into the vagina.

β. *P. vaginæ*, polypus of the vagina; issuing from the sides of the vagina; broad and bulbous.

Of these two species the former is an insensible tumour attached to the uterus by a small neck; various as to its size, form, and consistence; being sometimes white, at other times brown; sometimes hard and tough, at others soft and easily broken. The soft state is the least frequently met with. The symptoms which attend this disease are a copious mucous or muco-sanguineous discharge. Sometimes actual coagula of blood are emitted, which often correspond with the former polypous structure on which they have accumulated. The retention of these coagula sometimes induces putrefaction, in consequence of which an highly-offensive discharge takes place; to so great a degree, in fact, as to simulate the fetid smell of the cavernous exudations from the carcinoma uteri. Pain in the back and groins, with a sense of pressure and bearing-down, are met with in this complaint; all which symptoms are proportioned to the size of the tumour. Frequent vomiting, the consequence of the stomach's sympathizing in uterine irritation, is common to this disease; and, when the bladder also is thus sympathetically affected, strangury is no uncommon occurrence. The latter disorder, however, as well as retention of fæces in the rectum, is often brought on by the pressure of the enlarged polypus on the respective canals of the urine and stools. In protracted cases, dropsy may accompany this disease. On manual examination, we find a tumour of little feeling projecting through the os uteri, by which its neck is so completely encircled, that we can pass the finger round it. This polypus is distinguished from inverted uterus by the history of its commencement, and by its insensibility. It might be confounded with the cauliflower excrescence, had not the latter an irregularity of surface, an origin by a broad base from the os

uteri itself, instead of coming through it with a thin peduncle, and were it not attended by a watery discharge. These circumstances are sufficiently apparent to prevent this mistake. The polypus of the uterus affects both single and married persons; those who are cachectic, and those apparently healthy, and who have suffered no injury of the womb. The only mode of cure consists in tying the neck of the polypus by means of a canula and ligatures; and afterwards extracting the tumour by the fingers or a pair of forceps; (for the mode of doing which, see SURGERY.) The vagina is then to be washed with a tepid lotion for the purpose of keeping the parts clean, and astrigent lotions thrown up if any remains of the complaint are apparent.

The polypoid tumour which springs from the vagina or from the uterus by a broad base, is generally different in its anatomical characters from true polypus, and is very difficult of cure. It may be removed by a ligature; and, if the parts are kept clean and the state of the constitution (which is oftentimes in fault) amended, the patient will experience a long period of relief; but the tumour will almost inevitably return.

Order III. *CARPOTICA*, [from *καρπος*, fruit.] Disorders affecting the Impregnation. Irregularity, difficulty, or danger, produced by parturition.

This order contains four genera; of which, and their species, we shall merely give Dr. Good's arrangement and enumeration, as the subjects have been fully discussed under the articles ABORTION, vol. i. and PARTURITION, vol. xviii.

Genus I. *Paracyesis*, [from *παρα*, bad, and *κυνος*, impregnation.] Morbid Pregnancy. Generic characters.—The progress of pregnancy disturbed or endangered by the supervention of general or local disorder. There are three species, besides varieties.

1. *Paracyesis irritativa*: pregnancy exciting distress or disturbance in other organs or functions than those primarily concerned. Five varieties.

α. *Syncopalis*; accompanied with frequent fainting.

β. *Dyspeptica*; accompanied with indigestion or sickness.

γ. *Dyspnoica*; accompanied with difficult breathing.

δ. *Alvina*; accompanied with derangement of the alvine canal, as costiveness, diarrhoea, hemorrhoids, &c.

ε. *Varicosa*; accompanied with venous dilatations of the lower extremities.

2. *Paracyesis uterina*: pregnancy disturbed or endangered by diseased affection of the uterus. Four varieties.

α. *A. retroflectone*; the uterus being retroverted. See *Oedoptosis uteri*, β.

β. *A. leucorrhœa*; the uterus secreting, or exciting in the vagina a secretion of leucorrhœa, so as to produce debility.

γ. *Catamenica*; the catamenia continuing to recur.

δ. *Hæmorrhagica*; accompanied with hæmorrhage.

Catamenia, unaccompanied with hæmorrhage, can scarcely be regarded as a disease. Many menstruate uniformly for the first three or four months of pregnancy. Some through the whole term. A few have never menstruated at any other time; of which some curious cases are related by Hagedorn, Hopfengartner, and other Dutch writers.

3. *Paracyesis abortus*: premature exclusion of a dead fetus from the uterus. If the exclusion take place within six weeks after conception it is called *miscarriage*. If between six weeks and seven months, or the term of premature labour, it is called *abortion*.

Genus II. *Parodynia*, [from *παρα*, bad, and *ωδιν*, or *ωδινος*, labour-pain.] Morbid Labour.—Generic characters.—The progress of labour disturbed or endangered by irregularity of symptoms, presentation, or structure. There are seven species.

1. *Parodynia atonica*, lingering labour; labour protracted

tracted by general or local debility. In the Ephemera Nat. Curios. is the case of a fetus illaping into the uterus after its head had been denuded, and it had moaned.

2. Parodynia sympathetica: labour retarded or harassed by sympathetic derangement of some remote organ or function. Three varieties.

α. Syncopalis; accompanied with fainting.

β. Convulsiva; accompanied with convulsions.

γ. Pathematica; accompanied with great terror, apprehension, bashfulness, or other emotion of the mind. See vol. xviii. p. 710.

3. Parodynia implastica: labour delayed or injured for want of plasticity, or unkindly dilatation of the soft parts. Three varieties.

α. Rigiditatis; the delay confined to a simple rigidity of the uterus or vagina.

β. Hæmorrhagica; accompanied with hemorrhage.

γ. Lacerans; accompanied with laceration of the perineum, or uterus.

4. Parodynia perverfa, cross birth: labour impeded by preternatural presentation of the fetus, or its membranes.

This species is divided into seven varieties, according as the presentation may be that of the face; of the breech; of one or both feet; of one or both arms; of the shoulder; prolapsed navel-string; or, lastly, presentation of the placenta.

5. Amorphica: labour impeded by mis-configuration of the fetus or of the maternal pelvis. Two varieties.

α. A. fetu; the fetus deformed by a preternatural magnitude of head, or some morbid protuberance.

β. Pelvica; the maternal pelvis contracted in its diameter by natural deformity, or subsequent disease or injury. Not unfrequently produced by an hydropic or encysted ovary occupying a position between the rectum and vagina. The deformed pelvis is the most frequent and obnoxious impediment to parturition; but it has already been amply treated of in vol. xviii. p. 690 & seq.

6. Parodynia pluralis: labour complicated by a plurality of children.

7. Parodynia secundaria: diseased action or disturbance succeeding delivery. Four varieties.

α. Retentiva; retention of the secundines.

β. Dolorosa; violent after-pains.

γ. Hæmorrhagica; violent hemorrhage, commonly called *flooding*.

δ. Lochialis; profuse lochia.

Genus III. *Eccyefis*, [from *εκ*, out of, and *κρυσις*, impregnation.] Extra-uterine fetation; i. e. imperfect fetation produced in some organ exterior to the uterus. There are three species.

1. *Eccyefis ovaria*: imperfect fetation occurring in the right or left ovary. (*Graviditas ovarii*, *Sauv.*) Examples are common. See Ab. Vater Dissert. de Grav. apparente, ex tumore ovarii dextri enormi orta, per tres annos cum dimidio durante. *Ed. Med. Ess.* v. 336. *Ed. Phys. Ess.* ii. 273. *Forrester*, 1798, 379. *Ed. Med. Journ.* ii. 180. Dr. Baillie in Phil. Transf. 1789. *Barnes in Transf. Medico-chir.* iv. 317.

2. *Eccyefis tubalis*: imperfect fetation occurring in the Fallopian tube. (*Graviditas tubalis*, *Sauv.*) See Littré, Mem. de l'Acad. R. des Scav. 1702. Cyprian. Dissert. de Fetu ex Tubâ exciso, 1700. Haller, in Boerh. v. 329. Santorin, Obs. Anat. c. ii. Transf. Soc. Med.-chir. i. 215. See also a case by Mr. Stanley, in the Transf. College Physicians, vol. vi.

3. *Eccyefis abdominalis*: imperfect fetation occurring in the cavity of the abdomen. See Krohn, Fetüs extra uterum hist. Deutsch de graviditate abdominali. Mem. Med. Soc. Lond. iii. 176. Wrisberg Observ. Anat. Young, Medico-chir. Transf. i. 241. "For want of a regular passage opening externally, the substance formed often remains for many years in the extra-uterine nidus." Walther gives an instance of twenty-two years; Bayle a case of twenty-six years; Phil. Transf. 1677-1678, vol. xii.

The Ephemera of Natural Curiosities, one of forty-six years. *Cent. x. Obs.* 48."

Genus IV. *Pseudocyefis*, [from *πσευδο*, false, and *κρυσις*, impregnation.] Spurious pregnancy. Generic characters—Symptoms of pregnancy without impregnation; chiefly occurring on the cessation of the catamenia. Two species.

1. *Pseudocyefis molaris*, false conception, or mole: the uterus irritated by a coagulum of blood or other fluid lodged in its cavity, often assuming a fibrous appearance. Frequently exhibiting, on being discharged, hydatids or other vermicles. See, for examples, Marcellus Donatus, lib. iv. cap. 25. Journ. des Scavans, passim. Ruysch. Obs. 28, 29. Evacuated during dancing; Slevoght, Diss. Fem. mol. labor: Jenæ, 1700."

2. *Pseudocyefis inanis*: the uterus void of internal substance, and irritated by some unknown morbid action.

CLASS VI. ECCRITICA, [from *εκκρινω*, to strain off, drain, or exhaust.] DISEASES of the EXCRETENT FUNCTION.

Order I. MESOTICA, [from *μεσος*, the middle.] Disorders affecting the Parenchyma. "Pravity in the quantity or quality of the intermediate or connecting substance of organs; without inflammation, fever, or other derangement of the general health." It is very clear that this definition of Dr. Good's by no means applies to all diseases of the excrement function of the parenchyma. Indeed we are much surprised that the very frequent connexion between some of the diseases and "inflammation" and "fever" should have escaped any one. This order contains four genera.

Genus I. *Polyfarcia*, [from *πολυσαρκος*, fleshy, abounding in flesh.] Corpulency, or obesity. Generic characters—Firm and unwieldy bulkiness of the body or its members, from enlargement of natural parts.

Considering the derivation of the word, we are rather surprised that Dr. Good has used the term *Polyfarcia* for this genus, since much flesh or muscle is not a disease: it is when the fat is superabundant that inconvenience is felt.

Polyfarcia adiposa; a single species. Bulkiness from superabundant accumulation of fat. Two varieties.

α. A. generalis; extending over the body and limbs. Sennertus mentions a woman, who at thirty-six years of age weighed four hundred and eighty pounds avoirdupois; and a man who weighed six hundred. Bright of Maldon weighed six hundred and sixteen pounds; and Lambert of Leiceſter considerably more. In the N. Sammlung Medic. Wahrnehm. iii. 370, is the case of a man who weighed eight hundred pounds.—Carried off by a spontaneous salivation. *Eph. Nat. Cur.* Dec. iii. ann. v. vi. obs. 63.—By a fright. *Samm. Medicin. Wahrnehmungen*, vi. 444.

β. A. splanchnica; confined to the organs or integuments of the trunk, the limbs retaining their gracile form.

Fatness seems to be owing to an inordinate degree of power in the assimilative organs. It has been generally attributed to over-eating; but this is not borne out by facts; neither, when we consider how much intemperance disturbs digestion, should we expect to find this the case. Indeed, in many instances, fat persons are remarkably abstinent in regard to aliment; and it is therefore the active state of the digestive organs, which, undisturbed by mental irritation to which these kind of people are so little subject, assimilates almost every portion of food they take into the blood, that we must in a great measure look for the cause of corpulence. We must confess however, that, even under this hypothesis, we should rather expect to find general plethora than an extraordinary development of adipose structure. Corpulence is only a disease when, by its pressure on the heart or any of the viscera, it disturbs in an unusual degree the breathing, the circulation, or any other of the functions.

Many plans have been laid down for the reduction of corpulence,

corpulence, but with little success. The most excessive and fatiguing exercise has been taken, the most rigid abstinence adopted, without any benefit. These measures should form, however, part of the treatment of most cases; but we believe that a gradual diminution in the periods of sleep, and the regular use of *dry feeding*, the quantity of fluid being brought down to the smallest possible degree, will do more for the cure of corpulence than any other measure. Of course, if the fat oppresses the action of the heart, or if plethora be manifest in combination with Polyfarcia, bleeding may be used; but otherwise the relief it gives seems only temporary.

Genus II. *Emphyma*, [from *εμφύω*, to engender, to produce.] Tumour. Generic characters—Glomeration in the substance of organs from the production of new and adscititious matter; sensation dull; growth sluggish.

The reader has already been referred to the article TUMOUR in this work for an account of *Phyma*. To the same article we shall be obliged to defer the consideration of the genus *Emphyma*, which indeed belongs more particularly to *Surgery* than to *Pathology* in the present acceptance of those terms.

A complete description of these productions has been long before the public; viz. Mr. Abernethy's work on Tumours, in which all that is known of their treatment is comprised; and indeed Dr. Good's arrangement of the genus is entirely formed upon that excellent work. The species are three, with many varieties.

1. *Emphyma farcoma*, farcomatous tumour, (Abernethy.) Tumour immoveable; fleshy and firm to the touch. Of this there are eight varieties.

a. *S. vasculorum*, common vascular or organized farcoma, (Abernethy.) Vascular throughout: texture simple: when bulky, mapped on the surface with arborescent veins. Found over the body and limbs generally. Often found of an enormous size in the scrotum, constituting the farcocele, or hernia carnea, of authors.

β. *S. adiposum*, adipose farcoma: fatty throughout: inclosed in a thin capsule of condensed cellular substance; connected by minute vessels. Found chiefly in the fore and back part of the trunk. *Abernethy*.

γ. *S. pancreaticum*, pancreatic farcoma: tumour in irregular masses; connected by a loose fibrous substance, like the irregular masses of the pancreas. Found in the cellular substance; but more usually in lymphatic glands; chiefly in the female breast.

δ. *S. cellulorum*, cystic farcoma: tumour cellulose or cystose; cells oval, currant-sized, or grape-sized, containing a serous fluid; sometimes caseous. Found generally, but mostly in the thyroid gland, testis, and ovarium. When in the thyroid gland, it is called bronchocele, botium, or Derbyshire-neck. The cells are here numerous, the fluid often viscid, sometimes gelatinous. See *Cyrtosis Cretinismus*, p. 288.

ε. *S. scirrhorum*, scirrhus farcoma: hard, rigid, vascular, infarction of glandular follicles; indolent, insentient, glabrous; sometimes shrinking and becoming more indurated. When irritated, tending to a cancerous ulcer; and found only in glandular structures.

ζ. *S. mammarium*, mammary or mastoid farcoma: tumour of the colour and texture of the mammary gland; dense, and whitish; sometimes softer, and brownish; often producing, on extirpation, a malignant ulcer with indurated edges. Found in various parts of the body and limbs.

η. *S. tuberculorum*, tuberculate farcoma: tumour tuberculose; tubercles firm, round, and clustering; pea-sized or bean-sized; yellowish, or brownish-red; when large, disposed to ulcerate, and produce a painful, malignant, and often fatal, sore. Found chiefly in the lymphatic glands of the neck; often, simultaneously, in other glands and organs. *Abernethy*, p. 47.

θ. *S. medullare*, medullary farcoma: tumour of a pulpy consistence, and brain-like appearance; whitish, some-

times reddish-brown; when large, apt to ulcerate; and produce a sloughing, bleeding, and highly dangerous, sore. Found in different parts, chiefly in the testes; at times propagating itself along the absorbent vessels to adjoining organs.

2. *Emphyma encistis*, encysted tumour, or wen: tumour moveable; pulpy, often elastic to the touch. (*Lupia*, *Savv. Cull.*) Five varieties.

α. *E. steatoma*: an encysted extuberance containing a fatty or fatty substance, apparently secreted from the internal surface of the cyst. Found over most parts of the body; and weighing from a drachm or two, to twenty or thirty pounds.

β. *E. atheroma*: encysted extuberance containing a mealy or curd-like substance, sometimes intermixed with harder corpuscles; apparently secreted as the last. Found, of different sizes, over most parts of the body. (*Molluscum*, *Willan*.)

γ. *E. meliceris*: encysted extuberance, containing a honey-like fluid. Found, of different sizes, over most parts of the body.

δ. *E. ganglion*: encysted extuberance containing a colourless fluid; the extuberance fixed upon a tendon.

ε. *E. testudo*: encysted extuberance containing a fluid readily hardening into horn or nail; and especially when protruded externally upon an ulceration of the surrounding integuments. See *Abernethy*, p. 90.

3. *Emphyma exostosis*: tumour inelastic; often immoveable; hard and bony to the touch. Four varieties.

α. *E. ostea*: immoveable; protuberant; seated on the substance of a bone. Sometimes excrescent, and composed of bony spicula resembling crystallizations. Sometimes exquisitely hard and glabrous, resembling ivory. Both found chiefly in the bones of the cranium.

β. *E. periosteal*, node: immoveable; protuberant; from bony enlargement of the periosteum.

γ. *E. pendula*: bony tumour hanging pendulous into a joint.

δ. *E. exotica*: bony tumour moveable or immoveable, seated in some fleshy part of the body. See *Abernethy* on Tumour, p. 102. and *On Diseases resembling Syphilis*, p. 85.

Genus III. *Parostia*, [from *παρά*, bad, and *οστέον*, bone.] Bones untempered in their substance; and incapable of affording their proper support. Two species.

1. *Parostia fragilis*: substance of the bones brittle and apt to break on slight exertions, with little or no pain. Most frequently an attendant on advanced age. Found also, at times, as a symptom in lues, struma, and porphyria.

2. *Parostia flexilis*, (*Mollities ossium*, *Auct. Var.*) substance of the bones soft; and apt to bend, and become crooked, on slight exertions, with little or no pain. Found also as a symptom in porphyria and other cachectic maladies. See various cases in the *Phil. Trans.* by Bevan, Pott, Hofty, Pringle; as also Gooch, *Surg.* p. 178. and *Bromfield's Chirurgical Observations*.—Found at times in new-born infants, more or less general.—Universal, with perversion of most of the bones. *Morand, Histoire de la Maladie singulière et de l'examen du cadavre d'une femme (Sapiot) devenue tout-à-fait contrefaite par une ramollissement général des os, Paris, 1752.* We have an engraving lying before us, at the present time, representing this extraordinary specimen of disease. The softness of the bones is represented so extreme as to allow the feet to be placed on each side of the head, the femoral bones forming a perfect curve.

Genus IV. *Osthexia*, [from *οστέος*, bony, and *εξος*, habit.] Soft parts more or less indurated by a superfluous secretion and deposit of ossific matter. Two species.

1. *Osthexia infarciens*: ossific matter deposited in nodules, or amorphous masses, in different parts or organs. In the lungs; *Baillie, Morb. Anat. Fasc. II. Pl. 6.*—In the substance of the heart, weighing 2 oz. *Burnet, Med. Pract.*

Praet. iii. 254.—In the thymus gland; *Act. Med. Berol.* vol. i. p. 28.—In the thyroid; *Contuli de Lapid.*—In the parotid; *Plater Obs. lib. iii. 707.*—In the deltoid muscle; *Ruffe, in Blegny Zodiac, 1680.*—In the trachea, contracting its passage; *Kirkring, Obs. 27.*—In the dura mater; *Baillie, Fasc. X. Pl. 4.*

2. *Osthexia implexa*: ossific matter deposited in concentric layers in the tunics of vessels or membranes, rendering them rigid and uncompressible. Three varieties.

a. *I. aortæ*; ossification of the aorta.—With a considerable portion of the right ventricle and right auricle of the heart. *Baillie, Fasc. V. Pl. 2.* Valves ossified without palpitation or dyspnoea. *Morgagni de Sed. et Caus. Ep. xxiii. 11.*—Descending trunk wholly ossified. *Genga Anat. chirurg. Buckner Miscel. 1727.*—Ascending and descending trunks wholly ossified, compelling to an erect position. *Guattani de Aneurism.*

β. *I. membranæ*; ossification of membranous or connecting parts.—Of the pleura; *Baillie, Fasc. II. Pl. 3.*—General ossification of tendons, membranes, cartilages, and ligaments. *Pecklin, lib. ii. Obs. 40.*

γ. *I. complicata*; ossification of different parts simultaneously; as of the thoracic duct, ileum, and other abdominal organs. *Phil. Transf. 1780.*

Order II. CATOTICA, [from *κατω*, within.] Disorders affecting Internal Surfaces. Pravity of the fluids, or emunctories that open into the internal surfaces of organs. There are three genera.

Genus I. *Hydrops*, [from *υδρ*, water.] Dropsy. Generic characters—Pale, indolent, and inelastic, distention of the body or its members from accumulation of a watery fluid in natural cavities.

It has been ascertained by physiologists, that, in the healthy condition, a serous or watery fluid is constantly poured out, or exhaled, from what are termed the exhalent extremities of the arteries, into every cavity and interstice in the body, by which the parts are constantly moistened, and their adhesion, or painful attrition, is prevented. But upon the surfaces of the same cavities and interstices the mouths of another set of vessels, the absorbents or lymphatics, open, and take up or absorb this effused fluid before it has remained long, or been accumulated in those spaces, and carry it back into the circulating blood, through the thoracic duct, or general trunk of the absorbents. From this view of the animal economy, it at first seemed obvious that a perfect balance between these opposite functions of exhalation and absorption must exist, in order to maintain the health of the system; and that a dropical accumulation must be the consequence of the loss of such balance, and must be occasioned in one or other of the two following ways: 1. If the quantity of fluid poured out into any space be greater than the absorbent vessels can at the same time take up, it must necessarily accumulate in such parts; or, 2. Although the quantity poured out be not greater than usual, yet, if the absorption be any-how interrupted or diminished, an unusual accumulation will from this cause also ensue. Dropsy was in general therefore imputed to an increased exhalation or a diminished absorption, in the cavities in which it occurs. It will be found, however, upon an investigation of the various causes which are capable of producing these morbid conditions, that the exhalent vessels are commonly in fault, and that a plethoric state of the blood-vessels of the dropical part is the next link in the chain of causes. This plethoric condition may or may not be accompanied with inflammation of the red vessels; but, if such action do exist, the effusion of serum will be more rapid, and will be of a tenacious and gelatinous, or otherwise thickened, consistence or structure.

Of all other parts of the body, the serous membranes are most subject to effusions of water. Thus in the peritoneum we meet with ascites, in the pleura with hydrothorax, and in the sigmoidal capsules with similar effusions.

They are, however, by no means confined to these parts. The skin, irritated by a blister or by specific disease, gives examples of aqueous effusion under various appearances of vesicles, blebs, &c. The effused fluid exhibits different appearances; being sometimes a perfectly aqueous secretion, like the natural serum of the blood, and at other times quite different. Moreover, the same vessels which, under a trifling excitation, secrete undue quantities of serum, when more morbidly stimulated pour forth pus and coagulating lymph. Every thing that throws an inordinate flow of blood to the serous membranes may occasion dropsy; and in fact peritonitis, pleuritis, ascites, and hydrothorax, may often be traced to the same causes.

Of all other causes of ascites, an accumulation of blood in the peritoneal vessels is the most frequent. Thus we find, that, if the liver be diseased in such a manner as to obstruct the blood which flows from the intestines through the vena portæ to the heart, the ascites is an almost invariable consequence. Now in the case of tubercles or hydatids in the liver, the impediment being of course gradual in its formation, we do not often find inflammatory symptoms accompanying the disease; but, if cold be taken, we frequently find that inflammation does come on. Again; obstruction to the flow of blood through the lungs, as in asthma, brings on various forms of dropsy, but especially hydrothorax. Moreover the presence of the gravid uterus, or of any tumour in the abdomen, by pressing on the great vessels which retain the blood from the lower extremities, give rise to oedematous swellings under the integuments. Dropsy is also a sequel of fevers, especially of Rosalia. Besides increased action of the excretent vessels, dropsy seems to owe its origin to a preponderance of serum in the blood; and in this case passive plethora is generally found in a remarkable degree. General plethora also brings on dropsy; and we find it a very common sequel of repressed discharges, as piles, ulcers, or the like.

Of the mode in which absorption may be disturbed or accelerated we have before spoken at large in another part of this article. The connexion of diminished absorption with dropical effusion is obvious enough, either as a cause or an effect. Diminution in the quantity of urine is always met with in dropsy; and a distinction has been made by Dr. Blackall between inflammatory and chronic dropsy, according to the degree of coagulability of this fluid. In inflammatory dropsy this author states that the urine is easily coagulable on the application of heat; while in chronic dropsy this coagulation is absent altogether, or at least is very trifling in degree. This distinction has been contradicted; and we are enabled to state, from some experiments of our own, that it is not tenable. By this statement we do not mean to detract from the merits of Dr. Blackall, who must be acknowledged to have done much to improve the treatment of dropsy.

The symptoms vary as this disease affects different parts, as appears from the following details of the species.

1. *Hydrops cellularis*: cold and diffusive intumescence of the skin, pitting beneath the pressure of the finger. Three varieties.

a. *Totius corporis, anasarca*, or general dropsy: extending through the cellular membrane of the whole body.

β. *Artuum, edema*, limited to the cellular membrane of the limbs; chiefly of the feet and ancles, and mostly appearing in the evening.

γ. *Dyspnoica*; edematous swelling of the feet; stiffness and numbness of the joints; the swelling rapidly ascending to the belly, with severe and, mostly, fatal dyspnoea. This very severe and singular variety is taken from Mr. W. Hunter's Essay, published at Bengal, folio, 1804. The disease appeared with great frequency among the Lacars in the Company's service in 1801. Its attack was sudden; and its course so rapid, that it frequently killed the patient in two days. Mr. Hunter ascribes it to

to the concurrent effect of breathing an impure atmosphere, suppressed perspiration, want of exercise, and a previous life of intemperance. Hence probably a very violent kind of inflammatory dropsy.

4. Hydrops thoracis, dropsy of the chest; (Hydrothorax, *Sauv. Cullen, &c.*) Sense of oppression in the chest; dyspnoea, increased by exercise or decumbiture: livid and puffy countenance; purple lips; urine red and spare; pulse irregular; edematous extremities; palpitation and sudden startings during sleep.

The fluctuation of water in the ribs may sometimes be felt. According to Laennec, *mediate auscultation* (see p. 244, 5.) furnishes certain indications of the existence of fluid in the chest, and even discovers its extent. A great diminution, or indeed a total absence, of the sound of respiration; the appearance, disappearance, and return, of *egophony*, are the signs here manifested by the use of the stethoscope. When the pleuritic effusion is very abundant on its first formation, the absence of respiration is then totally uniform, and so complete that no sound whatever can be heard, however forcibly the respiratory efforts may elevate the thorax. The only part in which there is an exception to this, is an extent about three fingers breadth from the vertebral column. This exception seems to depend on the lungs being in contact with the parietes of the chest at the part above mentioned; and therefore the interposition of fluid between those parts, with its pressure on the lungs, which are the cause of the absence of the sound of respiration, do not here exist. In cases where the lungs are attached to the sides of the chest in other points, from adhesions of ancient date, the same exception may however exist in the parts thus affected. Sometimes, although the quantity of fluid effused is not diminished, the sound of respiration will return at the end of a few days; but it is without any mixture of *rattles*, unless pulmonary catarrh exist at the same time, which may help to make its distinction from pneumonia. When the effusion is not considerable, the sound of respiration commonly resembles what it is in children. When the fluid is disappearing, this sound returns from above downwards, as the surface of the fluid descends; except in cases when this order is interrupted by adhesions of the lungs to the thoracic parietes. To the above signs must be joined *egophony*, which is characteristic of it, and constantly indicates a collection of fluid when it is moderate in quantity; but it disappears when the quantity of fluid is very considerable. It is most evident when the fluid has least consistence; and therefore is generally most distinct in the situation of the upper part of the collection. *Egophony* may be suspended some minutes, or even hours; but it reappears when the patient expectorates. Many authors have noticed an increase in the volume of the side in which the collection of fluid exists in a great degree. This sometimes exists in a very remarkable manner. It disappears as the cure advances, and the side occasionally becomes at length smaller than in the natural state.

5. Hydrops abdominis, ascites, or dropsy of the belly: tense, heavy, and equable, intumescence of the whole belly; distinctly fluctuating to the hand upon a slight stroke being given on the opposite side.

It is this fluctuation which in ordinary cases distinguishes dropsy from pregnancy. Antonia Scarpa has however related cases tending to show, that, either from excess of liquor amnii, (in which case thirst is absent, and the natural form of a belly containing a gravid uterus is retained,) or from effusion from the peritoneum, (in which case thirst is present, and the regular form of the fundus uteri is not found,) dropsy and pregnancy may co-exist. These cases are of course very rare, and are to be relieved only from the extreme danger and dyspnoea which attend them by puncture. Scarpa directs this to be done (when we wish to avoid wounding the uterus) in the hypochondriac region, between the edge of the rectus muscle and the edge of the

false ribs. As to puncturing the womb itself, this is of course a very dangerous experiment. Scarpa thinks, however, that it may be tried in cases of imminent danger; and he quotes instances in which it has been done without ill effects. See "*Sulla Gravidanza suffequita da Ascite*, *Memorie del Cav. Ant. Scarpa, 1817.*"

Dr. Good makes three varieties of this species, the last of which seems to us quite out of place, since the disease is the same as inflammatory dropsy, though differently produced.

a. Atonica; preceded by general debility of the constitution. Often the result of scurvy, or fevers of various kinds.

c. Paralytica; preceded by or accompanied with opilation, or indurated enlargement of one or more of the abdominal viscera, usually the liver; the gall-bladder of which is often enormously enlarged and turgid. See *Phil. Trans. 1710-12. vol. xxvii. Yonge, Mem. de Paris, 1701. Du Verney, Act. Erud. Lips. 1713.* In the last, the bladder weighed ten pounds twelve ounces, had no meat, contained various tunics, and was filled with a coffee-like liquor. The substance of the liver is often found loaded with hydatids. In one instance it weighed twelve pounds. *Good's Cases, &c. p. 170.*

γ. Metastatica; from repelled gout, exanthems, or other cutaneous eruptions.

6. Hydrops ovarii, dropsy of the ovary: heavy and painful intumescence of the iliac region on one or both sides, with a sense of dragging; gradually spreading over the belly; with obscure fluctuation.

7. Hydrops tubalis, dropsy of the fallopian tube: heavy elongated intumescence of the iliac region, spreading transversely; with obscure fluctuation.

8. Hydrops uteri, dropsy of the womb; heavy circumscribed protuberance in the hypogastrium, with obscure fluctuation; progressively enlarging, without ischury or pregnancy.

In the treatment of no other kind of disease has the present age more reason to exult in its improvement in the therapeutic art, than in that of dropsy. No longer trammelled by that fatal devotion to system which led the older practitioners to prescribe in the same manner for all diseases in which the prominent symptom of watery effusion caused them to be ranged under the same title; we look to the *cause* of dropsy entirely for the rule of treatment. It is true, we are often puzzled to find this cause; but at all events, our knowledge is in the generality of cases sufficiently accurate to lead to beneficial treatment. Thus, if it seems that local pain has preceded or still accompanies a dropical effusion, especially if this pain has its seat in the pleura or peritoneum, we do not hesitate to treat it as simple inflammation. In doing this, however, we are of course as much regulated by the state of the pulse, the appearance of the blood (generally buffy and the serum easily coagulable), and the febrile commotion of the constitution, as the local pain. The measure of free bleeding is to be followed by counter-irritation (especially if the disease owes its origin to suppression of some accustomed morbid action), and by the excitement of the secretion of the mucous membrane, especially of the urinary passages, by diuretics, and of the bowels by drastic cathartics. The disease continuing obdurate, full doses of mercury will be well calculated to remove it.

If dropsy seems to arise from mechanical obstruction, still local bleeding may occasionally be proper to restrain the inflammatory action which all morbid products tend to produce by the stimulus; but our chief attention must be directed to the removal of the mechanical impediment. Thus, when a sluggish state of the liver exists, the excitement of the secretions of this organ by mercury affords great relief to the dropical symptoms; but, if tubercles, hydatids, or other arterial morbid tumour, exist in the liver, mercury must be interdicted; and the only chance we can afford the patient is to keep up a very frequent nausea by tartar emetic, and cut off the supplies from the

tumour by the most rigid abstinence. For the same purpose, small bleedings are occasionally proper. Such means will palliate the disease, and postpone its termination, though they will seldom cure it.

When dropsy owes its origin to a decrease in the quantity of the blood, or in the alteration of its quality, both which are commonly connected, our endeavour must be directed to restore this fluid to its natural state. Frequent and small bleedings of course effect a diminution of its quantity; and a regular attention to the state of the digestive organs is the only method of improving its quality. With respect to the diet, this should not be too low; and small quantities of wine may be allowed. The bowels must be kept open, and the mucous secretions in general excited. Exercise also, either active or passive, must be used regularly. Catarrh and asthma occurring with dropsy require no difference in their treatment on that account.

When either from the effects of idiopathic inflammation, or from general plethora, or from diseased blood, a state is induced which may be properly called the *chronic* state of dropsy, which is frequently met with an aborigine in old and debilitated persons, and in which the disease seems nearly stationary, the water very slowly collecting, the sanguineous functions tardy, and the digestive organs weak; when, in fact, a diminution of absorption seems the cause of the disorder's continuance, two alternatives present themselves, which must be adopted chiefly as the constitution of the patient is good or bad, and as the quantity of effused liquid is great or small. These are—the removal of the water by surgical means, as by scarifying the skin in Hydrops cellularis, by paracentesis thoracis or paracentesis abdominis in hydrothorax and ascites. (See SURGERY for these operations.) A morbid state of the constitution, or very old age, would prevent us from scarifying the skin, lest gangrene of the wounded parts should ensue; and the puncture of the abdomen should never be used unless the quantity of fluid contained is very great. It should be remarked also, that, if the waters seem to be contained in cysts, no very favourable prognosis should be given of the ultimate success of the operation; and the practitioner should be aware, that in these cases he is apt to meet with so gelatinous a serum, that it will not always flow through his canula. Paracentesis thoracis is at all times a dangerous operation; and, though it has on some occasions been found useful, yet the danger of wounding the lungs, and the uncertainty of the signs of hydrothorax, cause it to be very seldom used.

The means of exciting the absorbents are few and uncertain; nor will they have any effect, except in the particular cases under immediate consideration. Of the medicines which promote the action of the absorbents, mercury holds a very high rank, but its operation on these vessels is uncertain; nevertheless it is found useful in practice during the chronic state of dropsy. It should be given in small doses; and may be advantageously combined with diuretics. As a more direct mode of promoting absorption, *pressure* has been tried in many cases. Thus in *H. cellularis artuum*, bandaging the limbs, and in *H. cellularis totius corporis* and *H. abdominis*, frictions with the hand and flesh-brush are advantageously employed. The good effects of pressure in these cases probably induced a physician of eminence, Sir G. Blane, to try the same practice in chronic hydrocephalus; and, it is said with success. When however we consider the notorious ill effects pressure exerts on the brain, we should not be inclined to expect much from this practice; but the high authority on which it rests obliges us to mention it.

As medicines which have exerted a happy influence on dropsy under all circumstances wherein they could be made to act, we must mention diuretics. These medicines are however very uncertain in their operation; and it is a curious anomaly, that the weakest sometimes answer

where the most powerful fail. Their exhibition is of course likely to be fruitless in cases where tumours or diseased liver occasion dropsy; but, in inflammatory and in chronic idiopathic dropsies, they are generally useful. The digitalis, in doses of five to twelve drops thrice a day in a solution of cream of tartar, is perhaps the most useful diuretic for inflammatory dropsy that we know of. In chronic cases, squill combined with calomel is more potent. But a variety of diuretics are in the Pharmacopœia, as cantharides, turpentine, &c. which may be used when these common articles fail. On the same plan of counter-irritation, drastic cathartics, as elaterium, scammony, and oil of croton, have been used: their use should (generally speaking) be confined to cases of inflammatory dropsy.

We must now retrace our steps to describe two diseases which we passed over in Dr. Good's classification of this genus, where they occurred as the second and third species, under the titles of *Hydrops capitis* (water in the head), and *Hydrops spinæ* (*spina bifida*). We passed these over because they each of them require a distinct elucidation; for they by no means agree in the general characters of dropsy. *Hydrops capitis* is defined by Dr. Good as an "edematous intumescence of the head, the sutures of the skull gaping." This, however, is merely the character of a very rare disease, and has no reference to the symptoms of hydrocephalus in the common acceptance of the term.

The term *Hydrocephalus*, or *Hydrops capitis*, does not apply to this disease in any of its stages except the last; for, in its first stage, this malady is actually *Cephalitis*; *Cephalitis*, however, varying in intensity, and traceable to a variety of causes. The children who are predisposed to hydrocephalus, are those who have large brains, or unusual activity of the cerebral functions. But the absence of these phenomena by no means ensures a child from liability to the disease in question. Generally, for some time before more marked symptoms come on, unusual quickness of apprehension, vivacity of manner, and restlessness, are apparent. In some children this increase of sensibility reaches to an astonishing height, and indeed forms completely that erethismal state of brain before described under *dyspepsia*, p. 136.

But a more formidable set of symptoms than the above are those which display *diminished* cerebral energy. The children begin to be indifferent to every thing: their activity, vivacity, and good temper, vanish; they dislike light and notice; the lively colour of their countenance and brightness of their eyes begin to fade; and their sprightliness passes into dulness. Their bowels are confined, their urine scanty, their rest disturbed. The larger children, on sitting up in bed, complain of giddiness; they are also subject to rheumatic pains in the limbs, but particularly in the nape of the neck, calves of the legs, and soles of the feet. The smaller children express the same feelings by a certain rocking of the head, by suddenly becoming silent in the midst of a cry, by whining, and moving their hands towards their heads. The pulse is irregular, and sometimes intermits altogether: it is commonly the seventh, ninth, sixteenth, seventeenth, or thirty-first, pulsation which is weaker or deficient. From a state of reverie they are roused with a deep sigh, and begin again to notice those about them, of whose presence they had been apparently unconscious; the colour of the face changes, and they are alternately flushed and chilly. When asked if any thing ails them, they answer with an indifferent "No." They walk without firmness, and, in stepping forward, they often raise the foot as if they were stepping over a threshold; they totter and stagger as if drunk.

Sometimes in this stage, the infant, though in a state of health, frequently vomits, wakes suddenly with a cry, becomes soporose from an overloaded stomach, and has an irregular pulse. Sleeplessness, unusually continued screaming, without any other complaint; hanging the head

head after such attacks; alarm on the gentlest touch; an excessive quickness of hearing, so as to be awakened terrified by the slightest noise; diminished appetite; *an entire absence or excess of thirst*; a cry denoting pain, on slight movements of the body, but suddenly becoming silent by quick ones; constant pulling the nape of the neck with the hand; increased warmth of the head, particularly of the forehead and nape of the neck; are the chief guides for the diagnosis.

A most uncommon mode of approach is that, where the healthiest children are all at once seized with violent fever or convulsions, after a sudden attack of languor, giddiness, and head-ache, stiff neck, inclination to vomit, full hard and slow pulse, sensibility to light, and ringing in the ears. If the practitioner is called to this manifestly inflammatory affection, and employs the necessary remedies with activity, effusion may be arrested much easier than in the former cases, and a greater number of such sufferers may be snatched from death. But if a clear view of the disease is not taken, and remedies are not applied with overwhelming power, there follows most commonly in a few hours the moment of effusion, which may be recognized by its characteristic symptoms, and is soon succeeded by paralysis and death. This first stage often lasts only for a few hours; the latter frequently eight, ten, fourteen, and even more, days.

In the second stage, the symptoms of the phrenitic state show themselves: the patients complain of severe pains in the forehead, affecting the eyes, sometimes alternating with colicky pains; also pains in the limbs, and a shooting sensation in the nape of the neck. There is no place where they can lie still, and no person who can soothe them: the eye opens perfectly in the dark only, being very sensible to light, and shrinks above the upper eye-lid. The head is hot to the hand; but neither it nor any other part of the surface of the body is red, nor turgid with blood. In the tumultuous accession of the inflammatory period there is, however, an exception in this point; for the tunica albuginea is streaked with blood-vessels, and the inner surface of the eye-lid is inflamed. In such cases only there are convulsive movements of the eyes; the pulsations of the carotids are strong; the pale countenance shrinks, and rarely becomes cedematous and distorted.

Among the pathognomonic symptoms of acute hydrocephalus, Dr. Gölis enumerates dryness of the nose, paleness, cessation of appetite and thirst; furred tongue; vomiting, which becomes less frequent as patients advance to the state of effusion; the digestion of food is most commonly altogether suspended; the belly also, before tumid, falls away. At this period, there is tenderness on pressure on the region of the stomach and liver; there is often obstinate constipation; the urine is frequently scanty, passed with pain, and has a characteristic white slimy deposit; the hearing now becomes acute, and even painful; pains in the belly, nape of the neck, and particularly the head, are constantly complained of by moaning; the sleep is disturbed often by dreams, in which they cry out; they grind their teeth also. Pressing questions only obtain answers, and those are short; their movements are languid and compulsory; they cannot sit up without nausea and vomiting; the pulse is slow, unequal, and intermitting, but easily accelerated in a moment by pain: the latter symptom is also considered by Dr. Gölis as pathognomonic of this stage. The skin becomes flaccid, dry, and discoloured, and an eruption sometimes appears about the lips, neck, and shoulders. They are restless, and desire to be moved from place to place. Those with a very slow pulse, complain of as much pain as those with whom it is accelerated.

In the third, or stage of effusion, the above symptoms, after a few hours or days, grow worse. The patients can no longer sit up; the restlessness ceases; they most commonly lie on the back, and constantly kick up the bed-

clothes; they carry their hands to their head, mouth, and nostrils, into which as well as into their ears, they often bore so as to make them bleed; they half forget the words they would say. All the external senses become dull or annihilated, except that of hearing, which is often quick; the eyes are directed obliquely downwards; the pupils are dilated and oscillating, but unaffected by strong light; they often see double, or falsely; and open and close their eyes repeatedly in a few minutes. A gloomy earnestness is painted in their flushed countenance, with a threatening expression: it is a curious contrast of fierceness and patience, which often excites the astonishment of by-standers. They waste to a skeleton; their dry flabby skin hangs on their emaciated legs; partial sweats break out. The urine is passed unconsciously; there is constipation. The debility of the pulse, sighing, offensiveness of the breath, and general weakness, increase; coma comes on; and, before the last tragic scene, they sometimes become conscious, so as to sit up to eat and drink. They sometimes even swallow with eagerness, long for their play-things, and deceive the attendant with momentary hopes, which are followed by more severe sufferings than before.

When the patient survives this state, from ten to thirty days after, more frightful symptoms succeed: convulsions, followed by paralysis, most commonly of the right side, and often cramp, which draws the head backwards and downwards. The features are thus frightfully distorted; a violent fever follows; a perspiration trickles from the head; a hectic redness alternates with a deadly paleness on the disfigured countenance of the patient. The sight is lost; the pupil of the convulsed eye extremely dilated, and insensible to light, the tunica albuginea is blood-shot. The hearing, from being quick, gradually becomes dull, swallowing becomes impossible, though there are often moments in which they can take fluids; the urine is scanty, and passed unconsciously; it continues of a deep yellow colour, with a white sediment; the stools are still less frequent, but never fetid, as in the former stages. In many, the tips of the fingers become blood-red, and afterwards, on the approach of death, pale. The pulse is still weaker, and more intermitting than before; the head, however, remains warmer than the rest of the body; the spasms, which draw the head backwards, and the arms against the sides, cease only with life. For the above detail of symptoms we are chiefly indebted to Dr. Gooch's translation of the work of Dr. Gölis on Acute Hydrocephalus.

Hydrocephalus is evidently inflammation of the membranes of the brain; and it is from the arachnoid membrane especially that the effusion is derived. The cerebral inflammation which precedes this effusion is of course traceable in different instances to different causes. Among the children of this country, and of the large towns especially, it is very generally found, that irritation of the digestive organs is the precursor of Hydrops capitis; while in other situations the action of the sun's rays is the most common cause of the disease. It is to be remarked, however, that the action of the solar rays on the head generally induces those sudden and violent attacks in which stupor or raving delirium precede the way to a speedy death; but that the more common precursors of hydrocephalus cause symptoms of cerebral excitation to appear long before those of cerebral plethora. In the first stage, or that in which mere irritation is manifested by listlessness and exaltation of the mental emotions, the treatment consists chiefly in improving the action of the chylopoietic viscera, which are so generally impaired. The bowels may be freely opened, to a degree in fact sufficient to excite counter-irritation; the liver may be acted upon by doses of calomel, and low diet ordered. When stupor or much visual deception is remarked, we may bleed in this stage of the disease, because these symptoms are signs of fulness of the vessels of the brain; but,

If these symptoms are not present, the state of the alimentary canal is to be first attended to. As soon as the symptoms of cephalitis become in the slightest degree apparent, whether it has been preceded by the above stage, or makes its attack in a sudden and unexpected manner, bleeding must be had recourse to. As all that can be done in this disease must be done early, the practitioner must at once decide, not only from the constitutional appearance, but from the state of the pulse and of the mental faculties of the patient, the degree to which venesection may be carried. He will be chiefly guided in his opinion as to this point, by the mode of attack; for, when the disease comes on suddenly, it will, *ceteris paribus*, require much more ample bleeding than when indisposition has long preceded it. Most practitioners trust to leeches to the head; and in milder cases these may do very well; but we are quite sure that in the majority of patients the disease will be more suddenly arrested by the use of the lancet. Even in the youngest children, this measure should, when the disease is violent, always precede local bleeding; for, as we have before shown in this article, the efficacy of bleeding depends much on its action on the heart; and this effect is not increased unless by a sudden abstraction of blood. After the general bleeding, the application of leeches will be found of the greatest benefit; and, in violent cases, cold water to the head, and counter-irritants, as blisters, &c. to the feet, may also be used with advantage. The bowels are to be freely purged by drastic cathartics. We are cautioned by some authors (e. g. by Dr. Gölis) not to carry the use of these substances too far, lest we transfer the inflammation from the brain to the intestines. Of course this effect must be watched; but in few cases of violent Cephalitis will it be found to occur; and, even should it take place, it will seldom prove of an obstinate character, if the irritating medicines be withheld, and local bleedings and anodyne injections resorted to.

When the third stage, or that in which effusion has taken place, comes on, our treatment must be in a great measure directed by the history of the case. If the patient has been so far neglected, that no bleeding, or even if not enough of this evacuation has been made, we must (always keeping in view the fact that aqueous effusion is in most instances a consequence of vascular fulness) bleed until the pulse is reduced to a somewhat natural time. We may then purge, and counter-irritate. Lowering of the pulse may be produced also by the regular exhibition of digitalis in minute doses. In that state of aqueous effusion manifested by partial paralysis, large doses of this drug afford the only means we know of for palliating the sufferings of the patient, and relieving the convulsive agonies which attend death. And in those cases in which all inflammatory symptoms have gone off, and the patient has become quiet and idiotic, this drug will be found by no means useless. We know not whether this medicine relieves the malady in question by its vicarious action on the kidneys, or whether it represses the irritative inflammation which all morbid deposits tend to excite in the structure they inhabit, whenever the system happens to be subjected to the influence of inflaming causes, as cold, &c. but we have lately seen two very marked cases of chronic hydrocephalus cured by the exhibition of small doses of digitalis in conjunction with a very close attention to the digestive system, and change of air. It is this chronic state of hydrocephalus in which Sir G. Blane proposed to bandage the cranium.

3. *Hydrops spinæ*, hydro-rachitis or spina bifida, is a disease mostly congenital, though occasionally met with in adults. It consists of a "soft fluctuating extuberance on the spine, with gaping of the vertebrae." This gaping of the vertebrae is lateral to the tumour, and arises from the want of the spinous processes of these bones. The pressure of the tumour of course paralyzes those parts which have their nerves supplied from the lower portion

of the spinal marrow. The disease is, with a very few exceptions, incurable; the patient oftentimes dying in a few days after the tumour has begun to make rapid advances. In the few cases which have been met with in adults, it would appear that the pressure of the water caused *absorption* of the bone; but this is merely speculation. The little that can be done for *Hydrops spinæ* consists in applying gentle pressure on the tumour from its commencement. If this fails, we must puncture the tumour with a fine instrument, (as a needle,) evacuate the contents, and, closing it carefully to prevent the admission of air and consequent inflammation, re-apply the pressure for the purpose of preventing the return of the fluid deposit. It is to be remarked, that, when imperfect ossification of the bones of the head, and hydrocephalus, exist, then the case is nearly hopeless; for the pressure on the tumour mostly causes the greater proportion of water to press on the brain. When pressure on the tumour seems to do harm, we may prevent its further enlargement by a concave truss.

9. *Hydrops scroti*, hydrocele, or dropsy of the scrotum: soft semi-transparent pyriform intumescence of the scrotum; progressively enlarging, without pain. Two varieties.

α. Vaginalis; the fluid contained in the tunica vaginalis, or surrounding sheath of the testis.

β. Cellularis; the fluid contained in the cellular membrane of the scrotum.

Genus II. *Emphysema*, [from *φύσσω*, to inflate, to distend with air.] Inflation; Wind-dropsy. Generic characters—Elastic and sonorous distention of the body or its members, from air accumulated in natural cavities.

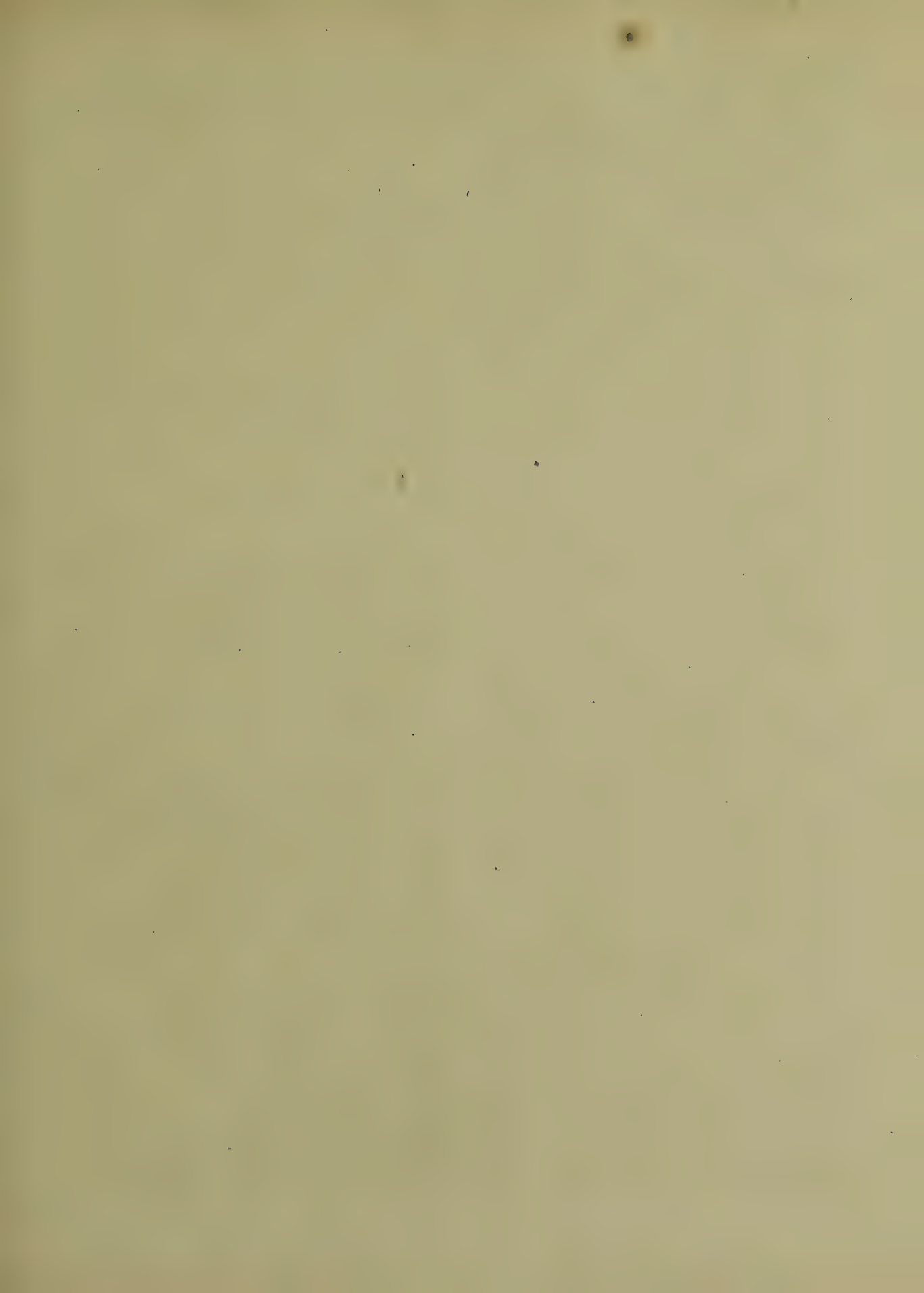
We have before spoken, under *Borborygmus*, of the supposition that air may be generated in the human body by secreting vessels. As far as this relates to the present genus, it derives support from those cases in which, upon the authority of John Hunter and other accurate observers, we are informed, that air has been found in cavities where neither its admission from without nor its generation from the putrefactive process could have been suspected. We have three species of this kind of spontaneous generation of air to enumerate.

1. *Emphysema cellulare*: tense, glabrous, diffusive intumescence of the skin, crackling beneath the pressure of the finger. Two varieties, as proceeding,

α. A vulnere; from a wound of the thorax.

Though the form of *Emphysema* which affects the thorax commonly arises from a wound, instances are not wanting to show, that this disease may arise from other causes. Thus violent fits of coughing, or other sudden exertions, may rupture the air-cells of the lungs, and give the air free access into the cellular membrane. This effect more certainly follows if inflammation exists in the structure of the lungs at the time the exciting cause is applied. In addition to the symptoms above mentioned in the definition of cellular *emphysema* in general, a sense of suffocation, great dyspnoea coming on in fits, and expectoration of blood, are met with in *Emphysema* from wounds of the thorax. In the treatment of the disease, the practitioner is rather occupied with removing the inflammation of the lungs which the wound occasions, than with the *Emphysema*, which in fact, if not excessive in quantity, will generally subside as the pulmonary phlogosis goes off. It is to be recollected, however, that a large collection of air in the cellular membrane spreads very fast, and threatens that structure with mortification. Hence it is sometimes necessary to evacuate the air by puncture, and to prevent as much as possible its reproduction by pressure. For the mode of operation, see *Surgery*.

β. *E. cellulare a veneno*, "from fish-poison, or other venom." It seems to us a mere popular error to suppose that the bodies of poisoned persons swell before death. That this happens afterwards we have no doubt in cases



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of fish-poison, and that it results from the sudden putrefaction which follows death produced by causes of an intense and sudden operation, and happening to persons in full habit of body.

2. *Emphysema abdominis*, tympany: tense, light, and equable, intumescence of the whole body; distinctly resonant to a stroke of the hand.

So few are the cases on record of this curious disorder, that it may reasonably be doubted whether it ever existed; that is to say, as a distinct and idiopathic disease; for that it follows a putrefactive state of the abdomen after enteritis, or operation for hernia, does not admit of a doubt. Should a case of idiopathic tympanitis occur, it might be advisable to tap the abdomen. When arising from putrefaction, it is almost unnecessary to say, that nothing need be done.

The Tympanites *intestinalis* of authors, like the meteorismus of Sauvages, is a variety, sometimes only a symptom, of dyspepsy, worms, hysteria, or some other disease affecting the intestinal canal.

3. *Emphysema uteri*, tympany of the womb: light tense circumscribed protuberance in the hypogastrium; obscurely sonorous; wind occasionally discharged through the mouth of the uterus. This disease, about which as little is known as of the former species, is, according to Parr, to be cured by rendering the mouth of the womb pervious.

Genus III. *Paruria*, [from *παρά*, bad, and *ουρά*, to make water.] Morbid secretion or discharge of urine. Four species.

1. *Paruria inops*, destitution of urine; without desire to make water, or sense of fulness in any part of the urinary track. Often the result of renal inflammation or paralysis; but sometimes a genuine idiopathic affection. Dr. Parr relates a case, that occurred in his own practice, in which no urine was apparently secreted for six weeks; at the end of which time the discharge returned spontaneously. A very curious case may be found in the Phil. Trans. by Mr. Richardson, of a boy who never secreted urine.

2. *Paruria retentionis*, (Ischuria, Cullen, &c. &c.) urine totally obstructed in its flow; with a sense of weight or uneasiness in some part of the urinary track. Four varieties.

a. *Renalis*; pain and sense of weight in the region of the kidneys, without any swelling in the hypogastrium.

The retention of urine, when it has its seat in the kidneys, is generally caused by inflammation, either idiopathic, or arising from a stone lodged in the gland or ureter, or, on the other hand, from some morbid growth in contiguous parts. The two former cases are of course to be relieved by bleeding, and sedatives, as opium, &c. The latter are nearly hopeless cases, and are only to be palliated by the same means, in slighter degrees of force. This gland, when it suppurates, or is accompanied by tuberculated accretions of the peritoneum, acquires, on some occasions, an enormous size; on others, it is much diminished.

β. *Ureterica*; with pain or sense of weight in the region of the ureters.

γ. *Vesicalis*; with protuberance in the hypogastrium; frequent desire to make water; pain at the neck of the bladder; sometimes at the end of the penis.

δ. *Urethralis*; with protuberance in the hypogastrium; frequent desire to make water; and a sense of obstruction in the urethra, resisting the introduction of a catheter.

The treatment of the first variety consists merely in relieving pain by anodynes, and promoting relaxation by warm bathing. In the two latter varieties, we have to consider the cause of the ischuria, or stoppage of urine. This is chiefly in the bladder: atony of the fibres of the fundus, or spasmodic action of the fibres of the neck of

this cavity. This contraction is to be overcome by such means as stimulate the contractile powers of the fundus, or diminish those of the neck; so that, on many occasions, diuretics, as turpentine and nitre, remove a slight degree of the disorder. Again, the warm bath sometimes relaxes the muscular fibres of the neck, and thus allows the evolution of urine; but, since each of these agents must more or less operate upon the antagonist muscles, it may so happen that they may do no good, as indeed is often sufficiently evident. A composition of equal parts of tincture of opium and tincture of muriated iron added to ten times their quantity of water, and given every half-hour in doses of a tea-spoonful, is perhaps the best remedy for ischuria that is known; but it often fails. It then becomes an object to introduce an instrument. The bougie, the silver or the flexible catheter, may be introduced as occasion serves; but their introduction can seldom be effected, unless some degree of relaxation is brought about; for this purpose free bleeding and the warm bath may be had recourse to. If the patient faints, this favourable opportunity of introducing the instrument is not to be lost. Much will depend, in the treatment of this complaint, on the *tact* of the surgeon; the introduction of the catheter being an operation only to be acquired by experience; and it is well known that some surgeons have introduced a catheter instantly, when others have failed after long and repeated trials.

If the introduction of this instrument is impossible, it then becomes a matter of consultation how long it may be safe to defer a more serious and infallible operation, the puncture of the bladder. No exact time can be specified at which the postponement of this operation will be fatal. Cases are related in which the suppression has continued for weeks; but of course no surgeon would rely on these cases for practice. As a general rule it may be stated, that, when the bladder is felt distending the belly an inch or two above the umbilicus, if the accumulation has been rapid, and the pain is very excruciating, the bladder should be punctured. See SURGERY.

3. *Paruria stillititia*, strangury. (Dysuria, Sauv. Cull. &c.) Painful and stillititious emission of urine. Six varieties.

a. *Spasmodica*; from spasmodic constriction of the sphincter, or some other part of the urinary canal, cate-nating with spasmodic action in some adjoining part. The same means may be used as advised for the relaxation of the bladder in complete obstruction.

β. *Ardens*; from spasmodic constriction excited by the external or internal use of various stimulants, as acrid foods, or cantharides; accompanied with a sense of scalding as the urine is discharged. Copious and mucilaginous drinks are all that are required to allay this irritation. Opium may be occasionally requisite.

γ. *Callosa*; from a callous thickening of the membrane of the urethra: the stricture permanent. Baillie, Morb. Anat. Fasc. viii. pl. 5. See Stricture, p. 167.

δ. *Mucosa*; the urine intermixed with a secretion of acrimonious mucus, of a whitish or greenish hue.

This disease may be considered as an inflammation of the mucous membrane of the bladder, similar in its nature to phlogosis of any other mucous membrane. In some cases, general bleeding, but often local depletion by means of leeches, with copious diluents, having small proportions of soda dissolved in them, will generally effect a cure. When constriction of the bladder has been caused by the long standing of this complaint, a state which is marked by constant pain over the region of the bladder, with inability to retain the urine for a long space of time, it has been proposed by Mr. Jesse Foot to wash out and distend the bladder with warm solution of uva ursi, introduced by means of a syringe.

The one or other of these varieties is found also occasionally, or as a symptom, in inflammation of the urinary organs, several species of lithia, and compression from

local tumours, retroversion of the uterus in pregnancy, or descent of the child's head in labour.

3. *Helminthica*; accompanied with a discharge of worms of a peculiar kind. This variety is given by Dr. Good upon the authority of Mr. Lawrence's very singular case inserted in the *Medico Chirurg.* Transf. vol. ii. p. 382. The patient was a female aged 24: had long laboured under a severe irritation of the bladder, which was ascribed to a calculus. She at length discharged three or four worms of a non-descript kind, and continued to discharge more, especially when the discharge was aided by injections, or the catheter remaining in the urethra for the night. The evacuation of these animals continued for at least a twelvemonth. Twenty-two were once discharged at a time; and the whole number could not be less than from 800 to 1000. A smaller kind was also occasionally evacuated. The larger were usually from four to six inches in length; one of them measured eight; slender in the middle; filiform at the extremities; thicker in the inter-spaces: they were soft when first voided, and of a yellowish hue. For the most part they were discharged dead.

4. *Polyposa*; the bladder or urethra, or both, obstructed by the formation of a polypous excrescence; sometimes shooting to the external extremity.

5. *Paruria mellita*, diabetes.

The derangements which the kidneys are subject to, in regard to the quantity and quality of their secretions, are very numerous. In a state of comparative health, the urine is liable to many slight changes in the relative proportions of its constituent parts, and sometimes indeed acquires additional constituents. In fact, so much variation is observed in the quality of the urine, that we see every reason to concur in the strongly-expressed opinion of a late physiologist, that the kidneys are the common sewers of the constitution. Yet, notwithstanding the various products derived by the kidneys from the blood, Berzelius has accurately remarked, that *acidification* is the chief employment of these glands. Thus the sulphur and phosphate of the blood is converted by the kidneys into phosphoric and sulphuric acids, and a new acid, the lithic, is formed. The analysis of diseased urine shows, that this acidifying process is sometimes carried to excess; and nitric, oxalic, and other acids, are produced; while, on the other hand, it is sometimes diminished, or totally suspended, and neutral or alkaline substances, or even pure blood, are predominant in the urine. Some authors, keeping in view this distinction as to the products of the disordered glands, and probably led also by the general principle, that inflammation is marked by excess of the functions of the affected structure, have endeavoured to show, that in most cases "when acids are generated in excess, the urine is commonly small in quantity, and high-coloured, and the disease inflammatory; when neutral or alkaline substances, the urine, on the contrary, is generally pale-coloured, and larger in quantity; and the diseases are those of irritation and debility." Prout on the Nature and Treatment of Gravel, p. 31.

It seems to us that this generalization is not borne out by experience; or that, at all events, the exceptions to the rule are very numerous. The matter is still, however, sub judice. Animal chemistry is now very usefully employed in analyzing the composition of morbid urine; and, if the connexion between a particular state of the secreted fluid and a particular state of the secreting vessel should ever be pointed out, it will no doubt be very useful. We are much inclined to doubt, however, whether this happy consummation will ever be attained. We find in other secretions great differences, yet all dependant on one cause, (viz. inflammation, and more or less energy in the nervous system of the diseased part;) and we find that the ordinary methods which relieve cases secreting one kind of scab are equally useful in those secreting a different one. We are not endeavouring to undervalue the use

of chemistry as applied to the analysis of diseased urine; but we wish to show, that, in the present state of our knowledge, more success will attend that practice which is directed to the action of diseased vessels, nerves, and secretants, than to the correction of chemical errors in the fluids secreted. Indeed we find as much contradictory evidence in the works of different authors as to the connexion between certain diseases and their chemical analysis, and we have so many recollections of opposite appearances of this fluid in common febrile and inflammatory disorders, that we look with very little confidence to the mode of investigation before alluded to.

Before any analysis of urine is attempted, it seems to us, that the state of the blood should be first ascertained; since, this known, we should clearly see whether the disease had its origin in local disease of the secretants, or in actual depravation in the quality of the fluid when its secretion is to be made. Now it is pretty obvious that it must be in one or both of these two modes that alteration in the quality of the urine can be produced. And firstly, that diseased blood often produces diseased urine no one can doubt, when they see the frequent, nay almost inviolable, precurrence of dyspeptic ailment to those of the urinary organs, and especially the close relation that is traced between lithic dispositions and peculiar regimen. That diseased secretion may result from local disease of the kidneys, even when the blood is healthy, is not only sufficiently probable, from its coinciding with the known laws of the secretory function all over the body, but is borne out by the facts. Simple nephritis, or a blow on the back, or even mental uneasiness, nervous maladies, especially hysteria, suddenly derange the secretion in question.

To return, however, to the history of the present species. Diabetes is thus defined by Dr. Good: "Urine discharged freely, for the most part profusely; of a sweet smell and taste; with great thirst, and general debility." The symptom of profusion of urine is one of some variation; but it is so generally met with, that it may justly be considered as one of the chief symptoms of the complaint. The saccharine taste of the urine is however the grand pathognomonic sign of the disease. This characteristic is always present, though it is sometimes obscured by the saline matters of the urine, and requires therefore that the urine be somewhat concentrated by evaporation before it is apparent. As to other changes in diabetic urine, it seems that the neutral salts of the urine bear the same relative proportion to each other as under ordinary circumstances, but that the aggregate of them is diminished. A like diminution, and sometimes indeed total absence, of the urea, is also met with. The specific gravity of the urine is also increased in the complaint under consideration. It increases on that of healthy urine, which ranges from 1010 to 1020, till it runs as high as 1038 or 1040, or in some rare instances as 1045.

Diabetes sometimes comes on slowly and imperceptibly, without any previous disorder; and it now and then arises to a considerable degree, and subsists long, without being accompanied with evident disorder in any particular part of the system, the great thirst which always, and the voracious appetite which frequently, occur in it, being often the only remarkable symptoms; but it now and then happens, that a considerable affection of the stomach precedes the coming-on of the disease, and that in its progress, besides the symptoms already mentioned, there is great dryness of the skin, with a sense of weight in the kidneys, and a pain in the ureters, and the other urinary passages. The temperature of the body is usually below the standard of health. The spirits are depressed, the disposition is equally indifferent to study or amusement, and there is evidently a decline of mental energy, with a loss of the power of virility. Ulceration of the tongue and gums are of frequent occurrence in diabetes, owing probably to the derangement of the digestive functions. Some morbid change in the alvine excretion

excretion always accompanies the diabetic habit, and co-tiveness is perhaps the most common of these; for, in some instances, the bowels have been so remarkably torpid, that even the most powerful medicines, in large doses, produced but a trifling effect. Watt remarks that inflammation and swelling are very common about the external orifice of the urethra in diabetes.

This disease is often attended with some pulmonic disorder; Dr. Bardley says invariably, but this does not accord with general experience. It is to be remarked, however, that diabetes seldom terminates in death until a secondary cause of the fatal event has arisen in the lungs. Under a long continuance of the disease, the patient becomes much emaciated, the feet œdematous; great debility arises, and an obscure fever, with all the appearances of hectic, prevail. In point of number, the pulse is very much diversified: in most cases, it is quicker than natural, but sometimes it is below the common standard. In some cases vision becomes very indistinct, and the patient is troubled with vertigo.

In some instances, the quantity of urine is much greater than that of the ingesta. Cases are recorded, in which from twenty-five to thirty pints were discharged in the space of a natural day, for many successive weeks, and even months; and in which the whole ingesta, as was said, did not amount to half the weight of the urine; and even the solid matter which this fluid contains often reaches an astonishing proportion. The surplus of the excrement over the increment in this case is explained by the want of cutaneous secretion, (the skin being generally dry and harsh,) and an extraordinary imbibition of water in the lungs. Dissections of diabetes have shown the kidneys, in some instances, in a loose flabby state, much enlarged in size, and of a pale ash-colour; in others, on the contrary, they have been found turgid and red, and containing in their infundibula, a quantity of pus, though without any sign of ulceration. At the same time that these appearances have been observed in the interior, the superficial veins on their surface were found to be much fuller of blood than usual. In many cases, the whole of the mesentery has been discovered to be much diseased, and its glands remarkably enlarged; some of them being very large and of an irregular texture; others softer, and of an uniform spherical shape. Many of the lacteals have likewise been found considerably enlarged. The liver, pancreas, spleen, and stomach, are in general in a natural state; when they are not so, the occurrence is to be considered as accidental. The bladder is now and then found to contain a quantity of muddy urine; in some cases its coats are much thickened, and its size less than natural.

The hypotheses which have been framed to account for diabetes resolve themselves into these. The first, for which we are indebted to the fanciful genius of Darwin, supposes a *retrograde motion of the absorbents*; an idea of which the absurdity has been pointed out in a previous division of this work, p. 43. Secondly, that of Cullen and Rollo, which supposes disease of the assimilating agents, and essentially consists in the supposition that *blood* is diseased in diabetes, and that the kidneys are only deranged in their action in consequence of the morbid state of the blood supplied to them. The third hypothesis supposes that diseased action exists in the secernents of the kidneys, and that consequently the saccharine matter is derivable from healthy blood.

The second hypothesis rests moreover on the strong fact, that, if sugar be introduced into the veins of an animal, especially if that animal be weak, sugar is first found in the blood, and secondly in the urine. But, though this shows the possibility of diabetes arising from saccharine blood, it does not prove that this is the invariable cause of that disease; and in fact sugar is not found in the blood in diabetic patients in general. The advocates of the doctrine of the cachectic origin of the disease get over this objection by asserting, that the *elements* of sugar

exist in the blood. Now this means nothing; for, according to this reasoning, the elements of hydrophobic and syphilitic virus exist in the blood; for the supplies out of which these morbid matters are formed are drawn from the blood by the secernents, however incognizable the original fluid may be when it has undergone the action of these latter vessels.

The connection between diabetes and dyspepsia appears to us very evident; but we cannot see that this proves any thing in favour of the opinion that the blood is diseased in diabetes, when we have so many instances of diseases of the secernent system arising from gastric disorder. And, moreover, the general disorder of the nervous system and of the skin which has been observed to precede diabetes in so many instances sufficiently accounts for the production of the disease without our having recourse to more far-fetched modes of explanation.

As there is much of uncertainty in our speculations concerning the nature of diabetes, it is impossible to attempt any philosophical view of the *modus operandi* of those medicines which have been found useful in its treatment. Our practice in this disease must therefore be strictly empirical. In the first place, bleeding has been tried in many cases of diabetes, and with much success. Practical writers assert that this evacuation is particularly called for when the discharge of urine is *profuse* as well as saccharine; but it seems to have been of much use in cases which did not present this symptom in an eminent degree. The blood, when abstracted, appears of a darker hue than ordinary, and the crassamentum large and easily broken. After a few bleedings, however, the crassamentum acquires firmness, and begins to exhibit the buffy coat. By some authors it is said that this plan of depletion has completely cured the disease under consideration; but more extended experience has not altogether affirmed this to be the truth; though it is almost universally agreed that bleeding does materially diminish the *quantity*, if it does not alter the *quality*, of diabetic urine. Animal diet has also been very generally resorted to, and with occasional success. It has been chiefly recommended on the supposition, that, as sugar was the principal constituent of chyle prepared from vegetables, therefore the adoption of diet of a different kind must effectually cure the disease by subtracting it; but, as we have before shown that sugar does not actually exist, we should rather incline to suppose that animal diet has cured diabetes rather by its salutary influence on certain gastric derangements arising from excess of vegetable food, than from any specific change it induces in the blood; and hence, that cases of diabetes might arise, in which animal food, by oppressing the digestive organs, would do harm. In no case should we expect much from diet alone, unless those important assistants to its healthy use, viz. pure air and regular exercise were also attended to. In all cases the most close attention must be paid to the alvine secretions and their regular excretion enforced by appropriate medicines, when not spontaneous; for, whether the disease be of cachectic origin, whether it arises from inflammation or from mucous irritation of the urinary vessels, the best effects will naturally be expected from medicines which have the triple advantage over all others, that they reduce inflammation, calm nervous irritation, and eliminate morbid matters from the blood. As in the diseases of the secernents in general, so in those of the kidneys in particular, we often find that, though the cause of the disease be effectually removed, the *habitual* morbid actions of the vessels remain. In diabetes especially, we often find that, when the general plethora and the dyspeptic disorder are in a great measure removed, the urinary disease remains protracted and harassing. In these cases, a specific or peculiar stimulus may be made to exert an influence on the secernents sufficiently powerful to induce their healthy action. Thus we have found much benefit, in a very severe case of diabetes, from the exhibition of full doses

of the tincture of the muriate of iron. It is in these cases that the use of opium in small doses, of hepatized ammonia, and of the magnesia calcinata, (so strongly recommended by Dr. Trotter,) seem to be useful.

The common modes by which diabetes terminates when the patient dies, are by dropsy, pulmonic disease, and hectic fever, or suddenly, and apparently from nervous exhaustion.

5. Paruria incontinenens: incontinence of urine: frequent or perpetual discharge of urine, with difficulty of retaining it. Four varieties.

α. Acris; from peculiar acrimony in the fluid secreted.

β. Irritata; from peculiar irritation in some part of the urinary channel.—Discharge of hairs. *Klatt. de Trichias*, Alton. 1703.

γ. Atonica; from atony of the sphincter of the bladder.

δ. Aquosa; from superabundant secretion; the fluid limpid and dilute. This variety, which was formerly considered of the same nature as diabetes, is now properly separated from the complaint, as having nothing in common with it but an increase in the quantity of the urine. The change which the urine undergoes in this malady seems to consist chiefly in the presence of a great deal of albuminous matter. The disease is rare; but, from what we can collect, seems to be clearly one of the nervous maladies. Attention to the gastric and cutaneous functions, and the relief of the urinal irritability by opium and sulphuric acid, or by hyoscianum, may be for the most part trusted to.

A peculiar and troublesome disease of the urinary passage in females is sometimes met with, which, from unwillingness on the part of the patient to consult medical men on the subject, often proves a source of great distress. It is an inflammatory affection of meatus urinarius. This is first discovered by a severe pain, which extends upwards during coition, the penis pressing on the tender part. As the disease advances, the pain is felt on making water; and, the passage suffering a partial dilatation, some part of the urine is retained in it, and excites a constant irritation and desire to make water. The disease proceeding, fulness of the parts is felt, aggravated by long continuance in the erect posture. If we are called in at either of these periods of the complaint, we shall afford much relief to the patient by applying leeches to the pudenda, and by directing the bowels to be kept open, and a solution of super-acetate of lead to be used as a wash. It is to the above inflammatory state of this structure that we have to refer the warty and fleshy excrescences occasionally found at the orifice of the meatus. These are to be removed by a ligature, and their reproduction prevented by caustication.

6. Paruria incocta: urine consisting of fluids taken into the stomach, and excreted without change.

7. Paruria erratica: urine discharged at some foreign outlet. Five varieties.

α. Salivaris; by the salivary glands. *Phil. Transf.* 1811.

β. Cutanea; by the skin. *Idem.*

γ. Umbilicalis; at the navel. *Act. Erudit.* 1760.

δ. Vaginalis; by a fistulous opening into the vagina. *Vuliferii. Oper.* iii.

ε. Perinætica; by a fistulous opening into the perinæum. *Ibid.*

Genus IV. *Lithia*, [from λίθος, a stone.] Morbid secretion or accumulation of calculous matter in internal cavities.

The formation of concretions in the urinary passages being occasioned by the precipitation and consolidation of particular ingredients in the urine, calculi must of course be liable to occur in any of the cavities to which the urine has access. In fact, experience proves that they are frequently met with in the kidneys, ureters, bladder, and urethra. It is commonly believed, that most of

them are originally formed in the kidneys, from which organs they afterwards descend with the urine into the other mentioned parts. We must however regard as exceptions to this observation, the cases in which calculi are formed round foreign bodies introduced into the bladder through the urethra, the digestive organs, or some accidental wound. In the centre of urinary calculi, surgeons have often met with bullets, splinters of bone, bits of wood, pins, &c. Nor is it necessary for such foreign bodies to be large, in order to produce this effect: a clot of blood, or a little bit of chaff, if not very soon voided, will cause a precipitation of the urinary salts.

1. *Lithia renalis*: pain in the loins shooting down towards the testes or thighs, increased on exercise; urine often depositing a fabulous sediment.

These symptoms, and the fact that stones have been often found on dissection in the kidneys when these symptoms had preceded death, clearly convince us that it is in the kidney that the first nucleus of the calculi are commonly produced. There are two varieties.

α. *Calculosa*; pain severe and constant; fabulous discharge small and seldom, or never; calculus usually large, and obstructing the pelvis of an ureter.

β. *Arenosa*, gravel; pain intermitting; free discharge of a fabulous sediment.

Renal concretions vary considerably in their number, size, and shape. In some cases, a single small calculus has been found occupying one of the foregoing situations; while, in other instances, an innumerable collection of calculous substances are observed filling the whole of the cavity of the pelvis and infundibula of the kidney, distending its parietes, and even obstructing the passage of the urine out of this viscus, which is converted into a sort of membranous cyst. Lastly, a single stone in the kidney may acquire a very large size there; or a great number of small calculi, in the same situation, may become cemented together by the deposition of fresh concreting matter between them, so as to form one mass of enormous dimensions, and the shape of which invariably corresponds to the space in which it is, as it were, moulded. Hence it is, that renal calculi often present a variety of odd irregular figures, resembling those commonly observed in specimens of coral.

Urinary concretions of large size very often exist in the kidney, without their presence being indicated by any external circumstances, or attended with any symptoms, sufficiently unequivocal to constitute a ground for suspecting the importance of their cause. On the other hand, it is very usual for renal calculi of middling dimensions to excite serious and alarming complaints. The reason of this difference becomes obvious, when it is recollected that small concretions are readily carried with the urine into the ureter, and become fixed in the narrow portion of the tube; but very large calculi can be contained only in the upper part of this canal, where its parietes are more yielding, and the space in them more capacious. Calculi of middling size, in their passage through the ureter, cause at first a feeling of heaviness, or an indeterminate sense of uneasiness, and an obtuse pain in the region of the corresponding kidney. These complaints occur at intervals of greater or less duration. At length, the pain grows more urgent and annoying, attended with flatulence, heart-burn, frequent vomiting, painful retraction of the testicle, and sometimes acute fever. The patient makes water frequently, and in small quantities at a time; and the urine is high-coloured and bloody. The patient cannot sit upright, his body being bent forwards towards the affected side. These symptoms may have more or less duration, and then suddenly cease. They may also subside and recur several times successively, with intervals of some days. In the latter case, the pain is felt at each attack to be situated lower in the track of the ureter. Lastly, when the symptoms have entirely disappeared, the urine is more abundant, not so high coloured, and easily discharged, the stream sometimes bring-

ing out with it the urinary concretion, which has now entered the bladder.

Suppuration of the kidney, and an abscess in the lumbar region, in consequence of renal calculi, are not very common events. This, however, is the only case of the kind, in which the interposition of surgery can be useful. By adverting to previous circumstances, and the irregularity of the pain about the kidney, the practitioner may suspect the nature of a phlegmonous tumour in the situation of this viscus. Whatever may be his conjectures, however, he must carefully abstain from the use of his lancet, until purulent matter is obviously under the integuments. He may then safely make an opening, from which urine and pus will be discharged, and through which the calculi themselves may sometimes be felt and extracted. But it is quite clear; that no operation for the extraction of calculi, by means of incision or other violent methods, can be safely attempted on so vascular a part as the kidney. It is only, therefore, when (on opening the abscess) calculi can be felt with a probe, that an attempt may be made for their extraction.

Calculi are sometimes found in the ureters, especially at their upper part; but it is not supposed that they are in general originally formed in that situation; an event not likely to happen, unless there be some cause obstructing or retarding the descent of the urine through those tubes. The common belief is, that all calculi found in the ureters are first produced in the kidneys, from which they afterwards descend in the course of the urine. The generality of calculi, however, which leave the kidney, are of small size; and consequently, after a time, and exciting some pain and inconvenience, they usually get into the cavity of the bladder.

2. *Lithia vesicalis*, stone in the bladder: frequent desire of making water, with difficulty of discharge: penis rigid; with acute pain at the glans; sonorous resistance to the sound when searching the bladder.

The form of calculi is various. Commonly they are spheroidal, egg-shaped, or oval flattened at the sides. They also receive some variety of form from the impression of other calculi. In a few instances, they have been found of an angular or entire figure, or of a shape corresponding with the pear-shaped form of the bladder, a circular protrusion answering to the neck of that cavity. The number and size of calculi are also liable to some variation, as may be seen by referring to the following instances which we are indebted to Dr. Good for pointing out.—*Voided* of the weight of 2 oz. by a female; *Hunow*, *Seltenheiten der Natur*.—2½ oz. troy by a female; *Molinæus*.—5 oz. by the penis; *Sammlung Med. Wahn*, Band viii. p. 258.—*Extracted*, 12 oz. weight; *Chefelden*, *Anat. Ephem. Nat. Cur.* Dec. II. ann. v.—22 oz. *Fabr. Hild.* de *Lith. vesic.* Cent. iv. obs. 51: the patient died during the operation—*Found in the bladder*, 4½ lb. weight; *Bresl. Sammlung*, 1724, ii. 434. 11.—In the bladder of a dog 1½ lb. *Eph. Nat. Cur.* II. Dec. III. ann. v. vi. p. 99.—Nearly 5 lb. in the bladder of a horse; *Gattenhof*, in *Diff. de Cal.* 1748.—2 to 3 oz. *Phil. Tr.* vol. xv. p. 1015.—The number of 120 of various sizes voided in the course of three days. *Eph. Nat. Cur.* Dec. III. ann. v. vi.—300 large in two years. *Fabr. Hild.* cent. i. obs. 69.—2000 within two years. *Gründlicher Bericht. vom Blatterstein*.

The symptoms of stone in the bladder are very obscure. They are often simulated by irritative maladies, and most especially by the nervous excitement consequent on indigestion. So marked and established is the similarity between dyspeptic nervous affections and the particular sensations of the bladder, that on many occasions not the slightest question could be entertained by the inexperienced practitioner of the presence of calculi, were it not that the *sound* gives no indication of it. Scirrhus of the rectum, and diseased prostate, are diseases which resemble the complaint in question in some respects.

The following is the history of the ordinary symptoms of *Lithia vesicalis*. The pain produced by the presence

of a calculus in the bladder, has the particularity of always affecting, in a very remarkable manner, the extremity of the penis. The glans becomes the seat of an itching sensation, which daily increases in violence; and patients, especially children, often get into the habit of pulling forwards the prepuce, in order to obtain relief. Hence, this part is frequently elongated in an extraordinary degree. This sympathetic sort of pain is more acute the larger the stone is, and the greater the irregularity of its surface. When the bladder is full of urine, the pain is not insupportable; but, just at the period when the discharge of that fluid is finished, the suffering becomes intolerable, because, at this instant the bladder contracts, and embraces the foreign body with considerable force. All rough exercise augments the pain; but walking over an uneven country, riding on horseback, and the jolting of a carriage particularly, have such an effect. When the patient is subjected to these exercises, he not unfrequently discharges a few drops of blood from the urethra. The desire to make water comes on very often; and the urine, as it flows, is attended with a sensation of heat, which changes into a burning kind of pain at the extremity of the penis. The stream of water is sometimes interrupted all on a sudden. The patient vainly endeavours to continue the evacuation; he applies his hand to the perineum; he moves about, lies down, or, in some way or another, alters his posture, and the urine then begins to run again. The moveableness of the stone makes it every now and then fall against the orifice of the neck of the bladder, and thus prevent, for a time, the exit of the urine. The incessant irritation, produced by the presence of the calculus, extends to the rectum; the patient is continually teased with an inclination to go to stool, and the efforts, which his imaginary want causes him to make, bring on, in many instances, hæmorrhoidal complaints, or even a prolapsus ani. But, as we before remarked that all these symptoms are equivocal, the practitioner should always introduce a *sound* into the bladder before he gives an opinion on the nature of the case. For the mode of *sounding*, see SURGERY.

Having thus detailed the symptoms which calculous depositions are accompanied with, and described the various situations they occupy, and the extreme magnitude or number they may acquire, we proceed to consider their *composition*, with reference to their removal by medical skill. In this task we shall make no distinction as to the situation the calculi occupy, or their size; since, whether they exhibit the form of gravel or of stone, their composition is analogous.

We shall class urinary depositions in the following order. 1. The lithic or uric acid deposition, being an excess of the natural free acid of the urine. 2. The depositions of which phosphoric acid forms a part; viz. the phosphate of lime or bone-earth calculus; the ammoniac-magnesian phosphate; and a mixture of the two latter, called the fusible calculus. 3. The oxalate of lime. 4. The cystic oxyd. 5. Compound varieties.

As to the formation of all these various matters, some of which are proper to urine in its healthy state, and some of which are peculiar to its morbid state, little can with certainty be said. Chemical philosophers have endeavoured to show, that a diet which contains a large portion of azote, as animal food, produces excess of alkali in the urine; and similar speculations have been founded on the effects of vegetable food. Further than the fact that an exclusive species of diet tends to derange the gastric functions, and that a change quite opposite must necessarily change many of the operations of the system, we cannot admit the correctness of any observations of this kind. In fact, contrary to what we should a priori expect, and contrary to these observations, we do not find that people who drink plentifully of waters strongly impregnated with salts are more disposed than others to calculous complaints. We are much pleased to find, that

the views we have entertained of calculous disorders, (see *Diabetes*;) viz. that they all consist in a peculiar change in the secretions of the kidneys, probably independent of the state of the blood, and consequently under the control of the nervous system, has received much support from the testimony of a recent distinguished author, Dr. Prout, who (in his *Inquiry into the Nature and Treatment of Gravel*) in every page refers to the disordered state of the nervous system as a cause of morbid depositions. We do not conceive that this opinion is at all impugned by the relief afforded in some cases by the exhibition of remedies opposite in their chemical properties to those of the calculi, because such medicines may act by causing a different action in the kidneys. The assumption of this idea explains how it happens, that it is only in some cases that the above remedies do good; since, that such failure should occur in medicines which act on disordered vessels, no one can be surprised at; but, that the uniform and invariable operation of chemistry should be so often disturbed must be a matter of the greatest wonder to those who conceive that these operations are the cause of calculi. To return to our history of the species of calculi.

1. *Lithic Acid Depositions.*—Lithic acid is separated from the urine in two forms, as sediment or as calculus. In the first form it is in combination with ammonia; in the second, pure. In the former state it is precipitated slowly, and acquires a reddish hue; in the latter the lithic acid forms a hard inodorous concretion, of a yellowish or brown colour, similar to that of wood, of various shades. According to professor Murray, calculi of this kind are in fine close layers, fibrous or radiated, and generally smooth on their surface, though sometimes a little rough. They are rather brittle, and have a specific gravity varying from 1.276 to 1.786, but usually above 1.500. One part of lithic acid is said to dissolve in 1720 parts of cold water, and 1130 parts of boiling water; (Marcet, p. 65.) and this solution turns vegetable blues to a red colour. When it has been dissolved in boiling water, small yellowish crystals are deposited, as the fluid becomes cold. Lithic acid calculi blacken, but are not melted by the blow-pipe, emitting a peculiar animal smell, and gradually evaporating until a small quantity of white ash remains, which is alkaline. By distillation, they yield ammonia and prussic acid. They are soluble in the cold, in a solution of pure potassa, or soda; and from the solution, a precipitate of a fine white powder is thrown down by the acids. Lime-water likewise dissolves them, but more sparingly. In solutions of the alkaline carbonates, they remain, according to Scheele, unchanged: according to the experiments of Dr. Egan, however, they are dissolved even by a weak solution, and also when the acid is supersaturated by carbonic acid. (Trans. of Irish Acad. 1805.) They are not much acted upon by ammonia. They are not soluble either in the muriatic or sulphuric acid; though they are so in the nitric, when assisted by heat; and the residue of this solution, when evaporated to dryness, assumes a remarkably-bright pink colour, which disappears on adding either an acid or an alkali. In many of these calculi, the lithic acid is nearly pure; in others, there is an intermixture of other ingredients, particularly of phosphate of lime, and phosphate of ammonia and magnesia; and, in almost all of them, there is a portion of animal matter, which occasions the smell when they are burnt, and the loss in their analysis. The deposition of lithic acid, either in the form of sediment, gravel, or calculus, is almost always connected with indigestion. According to some, the dyspepsia is the consequence of an excess of acid being generated in the stomach, from the morbidity of that organ suffering chemical changes to take place in it. But, as the presence of this free acid has not been detected in the blood in gravelly cases, we must infer that the gastric irritation caused (by means of sympathy) in the urinary secretions is the same action as is excited in those of the stomach; an

opinion which, though it assumes a sympathy not in general very apparent, is nevertheless possible. Dr. Prout gives another very plausible account of this matter; one which, while it assumes the existence of diseased blood in these cases, clearly shows why we do not find any free acid in the blood, and consequently that the disease depends on morbid action of the kidneys, induced by the morbidity of their sanguineous supply. This important principle is, that, if imperfectly assimilated or unnaturally albuminous matter is brought to the kidney, it does, and must, in virtue of its natural action, convert such imperfect albumen into lithate of ammonia.

The treatment of persons labouring under the above form of disease will not be difficult, whichever of the above theories we adopt; except that, under the influence of the former, our exhibition of alkaline remedies will of course be more free. We are bound in justice to declare, however, that the success which attends these remedies rather militates against than argues for, the theory in question; for they are very often quite useless. The most successful practice seems to be, to alter the diet in some essential points; but at the same time to attend rather to its quantity than to its quality; to excite the biliary and intestinal secretions by blue pill and gentle purges, and those of the skin by means of antimonials.

In those yellow depositions (consisting of lithate of ammonia), indicative of dyspepsia, the same treatment is to be followed. Those pink depositions from urine, which are composed, according to Prout, of the purpurates of soda and ammonia, and which are usually met with in chronic phlogosis and hectic fever, and almost always in acute inflammations, do not of course require that any change should be made in the ordinary course of treatment on their account.

Those sudden accessions of pain and inflammation which are called *fits of gravel* are more especially treated by low living, copious dilution, and full doses of hyosciamus.

2. *Depositions of which Phosphoric Acid forms a part.*—Phosphoric acid and lime, magnesia and ammonia, are all natural constituents of urine. A deposition of one or more of these alkalies, in combination with phosphoric acid, constitutes a very common form of disease. It is presumed that the phosphoric deposition may occur independently of any morbid change in the kidney, as when foreign bodies get by chance into the bladder, and form a point of adhesion for these salts; a change we should not be surprised at, when we observe the very common occurrence of urinary crystallizations in situations external to the body. It has been doubted, however, by some, whether even foreign bodies do not operate by exciting irritation, and consequently morbid secretion of urine. At all events, the derangement of the action of the kidney is the commonest source of the phosphatic deposition. This latter seems to consist in a suspended or diminished action of the usual acidifying powers of the kidney, whereby, instead of lithic acid, a greater quantity of urea (equivalent to ammonia), lime, and magnesia, is generated. This condition of the urine is very commonly dependent upon a deranged state of the chylopoietic viscera; frequently, too, it is connected with a great degree of irritability and debility of the system. Hence it is that children are so liable to this form of deposit, from their extreme irritability, and great tendency to disorders of the stomach and bowels.

The deposition of the phosphates is attended with uneasiness about the loins, a fallow haggard countenance, black, clay-coloured, or yeasty stools, and subsequently great languor and debility, as in diabetes. The urine too here, as in the diseases already treated of, is pale, and secreted in larger quantity than natural; but it is commonly of very low specific gravity, such as 1.002. When the specific gravity is greater than this, the phosphatic sediment is proportionally more copious. In this state of disease the urine is very prone to decomposition;

and speedily emits a nauseous smell from the evolution of ammonia.

Most authors have considered a long-continued use of alkalies as the cause of the phosphatic calculi; but, when we consider the unfrequency of this cause, we should be inclined to put little stress on its coincidence. This also is the opinion of Dr. Prout. This author allows that in a few cases it may occur, but, as a general principle in the pathology of earthy depositions from the urine, he considers it of no importance whatever. The real causes of this state of disease are, he says, either local or general. A large proportion of the cases are owing to some injury of the back. It is an old observation, that such injuries produce alkaline urine. Excessive fatigue, severe and protracted debilitating passions, are among the other general causes of the affection. *Its principal local causes are irritations about the bladder or urethra, especially when operating for a considerable length of time.* This appears to be the leading feature in Dr. Prout's views of the phosphatic diathesis. It is certainly deserving of remark, that the same view of the subject had long ago been taken by Mr. Murray Forbes, who expressly states, that, "when a foreign body gets into the bladder, it would operate by irritation, so as to occasion a redundancy of the phosphates."

The transition from the formation of lithic acid to the deposition of the phosphates is very curious. It takes place gradually through the lithate of ammonia, and is accompanied by the disappearance of the usual colouring principle from the urine. The transition from the mulberry-calculus to the phosphates takes place through a mixture of oxalate and carbonate of lime. The next layers are found to consist of the carbonate and phosphate of lime; and, still farther from the centre, the carbonate of lime disappears. Dr. Prout believes that wherever the change takes place *ex abrupto*, it is presumable that some time must have elapsed between the deposition of the different matters. It is a curious and important feature in the pathology of the urinary system, that a *decided* deposition of the phosphates is never followed by a different deposit.

When the deposition of the phosphates arrives at the magnitude of calculi, we have the three following kinds, as described by chemical writers.

Bone-earth, or phosphate of lime calculus.—This is of a pale brown colour, and so smooth as to appear polished. When sawn through, it is found very regularly laminated; and, the laminæ, in general, adhere so slightly to each other, as to separate with ease into concentric crusts. It dissolves entirely, though slowly, in muriatic or nitric acid. Exposed to the flame of the blow-pipe, it is at first slightly charred, but soon becomes perfectly white, retaining its form, until urged with the utmost heat from a common blow-pipe, when it may be completely fused. It appears to be more fusible than the phosphate of lime, which forms the basis of bone; a circumstance ascribed to the latter containing a larger quantity of lime. Calculi, altogether composed of phosphate of lime, are rather uncommon.

Triple calculus, or ammoniaco-magnesian phosphate.—Calculus masses, consisting solely of this substance, are perhaps never met with; but concretions often occur, in which it obviously prevails; and, as Dr. Marcet observes, "this triple salt frequently appears also in the form of minute sparkling crystals, diffused over the surface, or between the interstices of other calculous laminæ. Calculi, in which this triple salt prevails, are generally whiter and less compact than those of the former class. When the blow-pipe is applied, an ammoniacal smell is perceived, the fragment diminishes in size; and, if the heat be strongly urged, it ultimately undergoes an imperfect fusion, being reduced to the state of phosphate of magnesia." Dr. Wollaston describes the form of the crystals of this salt, as being a short triliteral prism, having one angle a right angle, and the other two equal, terminated by a pyramid of three or six sides. These crystals

are but sparingly soluble in water, but very readily in most, if not all, the acids; and on precipitation, they reassume the crystalline form. From the solutions of these crystals in muriatic acid, sal ammoniac may be obtained by sublimation. Solutions of caustic alkalies disengage ammonia from the triple salt, the alkali combining with a portion of the phosphoric acid.

Fusible calculus.—This is commonly whiter and more friable than any other species. It sometimes resembles a mass of chalk, leaving a white dust on the fingers; and separates easily into layers or laminæ, the interstices of which are often studded with sparkling crystals of the triple phosphate. At other times, it appears in the form of a spongy and very-friable whitish mass, in which the laminated structure is not obvious. Calculi of this kind often acquire a very large size, and mould themselves in the contracted cavity of the bladder, assuming that pear-shaped form before alluded to, which Dr. Marcet has never observed in any of the other species of calculi, and which consists in the stone terminating, at its broader end, in a kind of peduncle, corresponding to the neck of the bladder. The chemical composition of the fusible calculus is a mixture of the triple phosphate and phosphate of lime. These two salts, which, when separate, are infusible, or nearly so, when mixed together and urged by the blow-pipe easily run into a vitreous globule. The composition of this substance, says Dr. Marcet, may be shown in various ways. Thus, if it be pulverized, and acetic acid poured upon it, the triple crystals will be readily dissolved, while the phosphate of lime will scarcely be acted upon; after which the muriatic acid will readily dissolve the latter phosphate, leaving a small residue, consisting of lithic acid, a portion of which is always found mixed with the fusible calculus.

The tendency to phosphatic deposition is cured with difficulty, especially in advanced cases, when the actual presence of a stone in the bladder forms a mechanical cause of continued renal irritation. Even the French practitioners, so sanguine in their hopes of curing the lithic-acid depositions by a vegetable diet and copious dilution, confess their despair in cases of this kind. It may be remarked, however, that palliatives are particularly indicated. Large and frequent doses of opium may be given; and it will be some consolation to reflect, that these medicines have sometimes proved more than palliative; for that under a strict attention to the state of the primæ viæ (and without this attention no medicine can do good), they have suspended the deposition, and have restored the patient, even though afflicted with actual stone, to a state of good health, by preventing the further morbid secretion of the kidneys, and the consequent increase of size in the gravel or calculus. Besides this drug, Dr. Prout has prescribed with good effect a combination of uva ursi, muriatic acid, and hyosciamus, in the phosphatic diathesis.

3. *Mulberry Calculus, or Oxalate of Lime.*—This is mostly of a dark-brown colour, and frequently its interior is grey. Its surface is usually uneven, presenting tubercles more or less prominent, frequently rounded, sometimes pointed, and either rough or polished. It is very hard, difficult to saw, and appears to consist of successive unequal layers. Excepting the few stones which contain a proportion of filica, it is the heaviest of the urinary concretions. The pure alkaline solutions have no effect upon this calculus, and the acids dissolve it with great difficulty. When it is reduced, however, to fine powder, both muriatic and nitric acids dissolve it slowly. The solutions of the alkaline carbonates decompose it, as Fourcroy and Vauquelin have observed; and this affords us the easiest method of analysing it. The calculus in powder being digested in the solution, carbonate of lime is soon formed, which remains insoluble, and is easily distinguished by the effervescence produced by the addition of weak acetic acid, while there is obtained in solution the compound of oxalic acid with the alkali of the alkaline carbonate.

carbonate. From this, the oxalic acid may be precipitated by the acetate of lead, or of barytes; and this oxalate, thus formed, may be afterwards decomposed by sulphuric acid. Another method of analysing this calculus is by exposure to heat: its acid is decomposed, and, by raising the heat sufficiently, pure lime is obtained, amounting to about a third of the weight of the calculus. According to Fourcroy and Vauquelin, the oxalate of lime calculus contains more animal matter than any other. This animal matter appeared to them to be a mixture of albumen and urée. The composition of a calculus of this species, analysed by Mr. Brande, was—Oxalate of lime 65 grains, uric acid 16 grains, phosphate of lime 15 grains, animal matter 4 grains. We know nothing of the state of the body which induces this calculus.

4. *The Cystic Oxyd*.—Dr. Majendie states that it very rarely enters into the formation of gravel and urinary calculi; but, as the nature of this animal matter is not generally known, it may be proper to mention its general properties. Calculi formed of cystic oxyd, are semi-transparent, of a yellowish colour, and have a lustre similar to that of bodies of a density powerfully refractive. Exposed to heat in a retort, they furnish carbonate of ammonia of a fetid odour; there passes also an heavy fetid oil, such as is obtained from animal matter, but in a much less proportion than that which results from a distillation of uric acid. These properties show that, like uric acid, it is principally composed of azote; it is therefore probable, that it is produced by the same causes which determine the formation of uric acid. This substance is but very slightly soluble in water, not at all in alcohol, or the acetic, tartaric, and citric acids; it is, on the contrary, soluble in the muriatic, nitric, sulphuric, phosphoric, and oxalic acids, as well as in potash, soda, lime-water, and the carbonates of potash and soda. The greater number of its properties approach to those of uric acid.

5. *Of the Compound or Irregular Calculi*—the greater proportion are those which display alternate layers. Thus, lithic strata frequently alternate with layers of oxalate of lime, or with the phosphates. Sometimes also the mulberry alternates with the phosphates; and, in a few instances, three or even four species of calculi occur in the same stone, disposed in distinct concentric laminæ.

Some compound calculi have their ingredients intimately mixed. They have no characteristic feature; but may sometimes be recognized by their more or less irregular figure, and their less determined colour, by their being less distinctly if at all stratified, and by their often possessing a considerable hardness. By chemical analysis, confused results are obtained.

The remarks we have hitherto made on the treatment of calculous disorders, relates solely to the removal of that state of the constitution which causes the deposition or formation of stony matter; and consequently applies only to the prevention of its further formation. In another part of this work, (see LITHONTRIPIC, vol. xii.) we have expressed our conviction of the perfect futility of exhibiting any medicine with the view of dissolving stone in the bladder. It is the highest stretch of our present power in the treatment of calculi, to prevent their further progress; and if we can do this, and delay, for a certain space of time, the irritability of the system, the bladder will accommodate itself to the presence of the stone (while it no longer grows), and much comfort may be enjoyed by the patient of this dreadful malady. When these measures are unsuccessful, or when the youth or good constitution of the patient forbid us to fear the future regeneration of the stone, the removal of it will be advisable; which is to be effected in two ways: in men by the usual practice of lithotomy; but, with regard to women, the shortness and expansibility of the female urethra not only admits an evacuation of large calculi with little inconvenience compared with that suffered by men, but has often

suggested the expediency of introducing the stone-forceps into the bladder, so as to supply the place of lithotomy. Mr. Thomas, by gradually enlarging it by means of a sponge-tent, was, in one case, able to introduce his finger into the bladder, and succeeded in bringing away an ivory ear-pick which had been incautiously used as a catheter, and had slipped into the cavity. In another singular case, the same skilful operator gradually expanded the sphincter ani to a diameter large enough to admit his whole hand into the rectum, and hereby succeeded in extracting a large substance which had slipped into its channel. More recently, sir A. Cooper has succeeded in removing small stones from the bladder of an old patient, a clergyman, by means of a peculiar instrument of his own invention, which dilates the urethra, and draws the stones through the natural opening. For the common method (and the only one capable of application when the calculus is large) of removing stones in the bladder by the operation of *lithotomy*, and also for some further observations on the dilating system above alluded to, see the article SURGERY.

Order III. ACROTICA, [*ακρος*, extreme; hence *ακροαλγος*, the top or highest point of any thing.] Disorders affecting the Surface of the Skin. Pravity of the fluids or emunctories that open on the external surface; without fever, or other internal affection, as a necessary accompaniment. There are ten genera, which, as well as the species, are chiefly taken from Dr. Bateman's improved edition of Willan on Cutaneous Diseases.

Genus I. *Ephidrosis*, [i. e. sweat.] Preternatural secretion of cutaneous perspiration. There are four species, besides varieties.

1. *Ephidrosis profusa*: cutaneous perspiration secreted profusely.

2. *Ephidrosis cruenta*: cutaneous perspiration intermixed with blood.

3. *Ephidrosis partialis*: cutaneous perspiration limited to a particular part or organ. *Ephidrosis lateralis*, *Sauv.* who quotes from Schmidt (Collect. Acad. iii. 577) the case of a woman who was never capable (except when pregnant) of being thrown into a sweat in any other part than the left side.

4. *Ephidrosis tincta*: cutaneous perspiration possessing a depraved colour. Four varieties of colour.

α. *E. viridis*; of a green tinge. *Borelli*. cent. ii. 56.

β. *E. nigra*; of a black tinge. *Joel. Langelot. Collect. Acad.* iii. 255.

γ. *E. cærulæ*; of a blue tinge. *Wincler. Collect. Acad.* iii. 263.

δ. *E. rubra*; of the colour of port-wine. *Sauv.* and *Barthol.*

5. *Ephidrosis olens*: cutaneous perspiration possessing a depraved smell. Four varieties of odour.

α. *E. sulphurea*; of a sulphureous scent. *Ephem. Nat. Cur.* cent. i. ii. obs. 168.

β. *E. acida*; of a sour scent.

γ. *E. olida*; of a rank or fetid scent. Often partial, or evacuated from particular organs, as the feet or axillæ: sometimes from the surface generally, according to De Monteaux.

δ. *E. moschata*; of a musky scent. *Pecklin*, lib. ii. obs. 49.

The majority of these rare diseases are involved in much obscurity, and many of them are probably connected with other maladies. This is the case especially with profuse and partial perspiration, very common symptoms of dyspepsia; and may very fairly be presumed to be the case with stinking and bloody perspiration. Metastasis from the retention of milk, urine, the catamenial flux, and fæces, may also produce the same aberrations.

Genus II. *Eranthis*, [from *εἶς*, outward, and *ανθῆς*, to spring or flower; superficial or cutaneous efflorescence; in contradistinction to *Enanthesis*, or efflorescence springing

Les Exanthèmes

général ou
lucides ou vésiculeux, environnés d'une arête

réunis en coque ou par groupes qui s'inflamment
ou purulent, de tension ou d'urticaire. Bientôt ces boutons se rompent et
laissent un sillon, de cet état une matière ichoreuse se

guelle : croutes. Les

The Squamous are covered with its scale. Thus
it is more resistant about the ears (explains to the ceremony) for
it is difficult to wash the head, the

springing from within. See p. 273.] Cutaneous blush. Generic characters—Simple cutaneous rose-coloured efflorescence, in circumscribed plots, with little or no elevation.

On coming to the consideration of cutaneous diseases strictly so called, it will be necessary to make a few preliminary remarks. It will be recollected, that in p. 141 of this article, we have expressed our concurrence in the opinion which attributes the majority of cutaneous defædations to gastric or intestinal irritation. In that place also sufficient evidence of this frequent connexion has been adduced. An objection, however, is in force against this mode of considering the diseases in question; that, while gastric or intestinal irritations are but few in number, cutaneous maladies are extremely multiform; and hence it may be inquired, Can so many and such opposite appearances result from one cause?

Let us examine the matter a little closely. Cutaneous disease is evidently a disease of the secretions of the skin; sometimes this disease is accompanied, either as a cause or consequence, with inflammation: i. e. turgescence and heat of the subjacent red vessels; but sometimes this is wholly absent, and the disease of the secretions is the only malady. Now this disease of the secretions is supposed to vary according to the product which is secreted; and on this variation have the classifications of cutaneous diseases by Willan and Bateman been solely founded. Thus, when inflammation of the subjacent red vessels takes place, the *papula*, or pimple, ("a very small and acuminate elevation of the cuticle, with an inflamed base, very seldom containing a fluid, or suppurating, and commonly terminating in scurf,") is found. When the inflammation goes on to such a degree as to disorganize the skin, *squama*, or scales, ("laminæ of morbid cuticle, hard, thickened, whitish, and opaque," and irregular layers of skin called *crusts*, or over ulcers *scabs*,) are observed. The simplest disease of the skin is that in which the secretions admit red blood, and secretion is at once suspended. This forms the *exanthema*, or rash; ("superficial red patches, variously figured, and diffused irregularly over the body, leaving interstices of a natural colour, and terminating in cuticular exfoliations.") When the above vessels secrete in small quantities, water, which becomes opaque, and is succeeded by scurf or crusts, they are named *vesicles*; when in large quantities like a blister, *bullæ*, or blebs. Lastly, when pus is secreted in the cutaneous elevation, it is called a *pustula*, or pustule. The pustule has in all cases an inflamed base. Dr. Bateman gives four varieties of it.

a. *Phlyæzium*; a pustule commonly of a large size, raised on a hard circular base, of a vivid red colour, and succeeded by a thick, hard, dark-coloured scab.

b. *Psyracium*; a small pustule, often irregularly circumscribed, producing but a slight elevation of the cuticle, and terminating in a laminated scab. Many of the psyracia usually appear together, and become confluent; and, after the discharge of pus, they pour out a thin watery humour, which frequently forms an irregular incrustation.

c. *Achor*; a small acuminate pustule, containing a straw-coloured matter, which has the appearance and nearly the consistence of strained honey, and succeeded by a thin brown or yellowish scab.

d. *Favus*, is larger than the *achor*, flatter, and not acuminate, and contains a more viscid matter; its base, which is often irregular, is slightly inflamed; and it is succeeded by a yellow, semitransparent, and sometimes cellular, scab, like a honey-comb; whence it has obtained its name.

To these we may add the *tubercle* and the *wheel*. The first is a small hard superficial tumour, circumscribed and permanent, or suppurating partially; and the *wheel* is the same appearance as is produced by a smart stroke with a whip on the naked skin. It seems a sudden accu-

mulation of the fluids of the part, which goes off as the vessels regain their natural powers.

To return to the subject we were reasoning upon. We perceive, therefore, two agents concerned in cutaneous diseases: the secretions of the skin, and the red blood-vessels of the subjacent tissue. We observe, that, according to the peculiar irritation which affects them, both these vessels put on different appearances. Now on the one hand, the circular form of one eruption is contrasted with the irregular form of another, and the morbid product of this is quite different from the diseased secretion of another. The diseases of the skin in which the sanguineous structure is implicated are few in number, and for the most part easily traced to the cause of morbid blood on the one hand, or atmospheric changes on the other. But the diseases which have their seat most strictly in the secretions of the skin, and which are by far the most numerous, cannot be supposed to suffer from atmospheric changes, since these could merely operate to reduce or increase the quantity of blood in the blood-vessels of the skin; and in fact are not more frequent in hot or cold climates than in temperate ones; though we allow that they are more violent in hot ones when once formed, by reason of the consequent inflammation which heat so naturally excites. And, even were these impressions allowed to have much force, we should be surprised to find that so many kinds of disease follow the very simple causes of heat or cold.

It is to that portion of the cutaneous expansion which lines the alimentary canal, which is exposed to a thousand different impressions from foreign bodies, from excess or alteration in its own secretions, or of those secretions poured so plentifully into it, which moreover is so closely connected by nervous sympathy with the external skin, that the most trifling ailments of the one alter the secretion and actions of the other, that we must look for the common cause of distention of the skin. Besides the connexion between the gastric and cutaneous irritation by means of nervous sympathy, the alteration which impaired digestion effects in the quality of the blood, may bring on cutaneous defædations; but it seems that the maladies produced by this cause as deeply implicate the subjacent tissue as the skin, and therefore are not properly to be classed with cutaneous disorders. Thus, Porphyræ is very properly separated by Dr. Good from this class. A great number of cutaneous diseases are infectious.

The cure, therefore, of all cutaneous maladies may be attempted with the following indications. The first is to restrain the action of the sanguiferous system, in those maladies or in those stages of maladies in which their action is excessive. This is chiefly effected by bleeding, by cooling and sedative lotions. The second is, to remove the morbid secretions which are applied to the alimentary canal, and which cause the disease. The correction of bile has been followed by the cure of troublesome cutaneous disorders; and there is scarcely a medicine capable of producing a powerful change in the secretions of the digestive organs but what has, on a few occasions, performed surprising cures. But the most philosophical and sure method of proceeding is to restore the function of the alimentary canal by proper regulations as to diet and exercise, and the state of the alvine secretions. In many cases this is all that is necessary; but in some, notwithstanding the digestive and sanguineous organs are in a very tolerable state of health, the disease of the skin will remain unabated. Under these circumstances, it will be necessary to apply some medicine that will stimulate the secretions in a different mode to that stimulation imparted by their nerves. In different diseases different stimuli will be necessary; but this can only be known by experiment. In some, the stimulating agent required is almost invariable in its successful operation; as sulphur for the cure of itch; in others, the greatest uncertainty is met with, as in some forms of impetigo.

Another mode of curing cutaneous diseases is by exciting a function vicarious to that of the skin, as the urine by means of diuretics. As an adjunct, the soothing of the irritable feelings of the affected structure by anodynes and baths is on many occasions required. This genus has only one species, namely

Exanthesis roseola, rose-rash: efflorescence in blushing patches, gradually deepening to a rose-colour, mostly circular or oval; often alternately fading and reviving; sometimes with a colourless nucleus: chiefly on the cheeks, neck, or arms.

This disease is merely symptomatic of a little feverishness of the system; and goes off spontaneously, or at least easily disappears under the use of a few gentle purges. It is mentioned in this place, less on account of its importance, than because it is liable, in some of its forms, to be confounded with some of the Exanthemata. Fig. 4, 5, and 6, on the Plate V. display the varieties of this eruption. Fig. 4 is the *summer rose-rash*, a rash attended with much itching and tingling, chiefly occupying the neck and shoulders, and of a roseate hue: it goes off on the fifth day. Fig. 5, the *autumnal rose-rash*, occurs chiefly in autumn; is of damask-rose-colour, appears chiefly on the arms, desquamates in about a week, and is attended with little itching or general disorder. Fig. 6 the *Roseola annulata* of Bateman, so called from its ring-like form, and appearing occasionally in every part of the body, is attended with fever when its duration is short, but with none when it lasts a long time. In the chronic form, the redness is not very marked till the evening, when a good deal of itching and tingling come on.

Genus III. *Exormia*, [from *εξορμαιν*, to break out.] Papulæ, or pimples. Generic characters—Small acuminate elevations of the cuticle; not containing a fluid, nor tending to suppuration; commonly terminating in scurf. There are four species.

1. *Exormia strophulus*: eruption of red pimples in early infancy, chiefly about the face, neck, and arms; surrounded by a reddish halo; or interrupted by irregular plots of cutaneous blush. Five varieties.

α. Strophulus intertinctus, red gum: pimples bright-red; distinct, intermixed with stigmata, and red patches; usually on the cheeks, fore-arms, and backs of the hands, but sometimes spreading over the body. The repulsion of this eruption is dangerous; but, should this happen, it may be counteracted by warm bathing; a measure generally useful.

β. S. albidus, white gum: pimples minute, hard, whitish, surrounded by a reddish halo.

γ. S. confertus, tooth-rash, or rank red gum: pimples red, of different sizes; crowding or in clusters; the larger surrounded by a red halo; occasionally succeeded by a fresh crop.

δ. S. volaticus: pimples deep-red, in circular patches or clusters; clusters sometimes solitary on each arm or cheek; more generally flying from part to part.

ε. S. candidus: pimples large, glabrous, shining; of a lighter hue than the skin: without halo or blush.

The three last varieties are shown on Plate VI. fig. 1, as they appear on the face, on the fore-arm, and on the arm. The species, indeed, like the preceding, is not considered of much consequence in practice; but is described and delineated on account of its occasional similarity to some of the Exanthemata.

2. *Exormia lichen*: eruption diffuse; pimples red; troublesome sense of tingling or pricking. Seven varieties; of which *α*, *γ*, and *ξ*, are the subjects of the remaining figures of Plate VI.

α. Lichen simplex, (see fig. 2. Plate VI.) General irritation, sometimes a few febrile symptoms at the commencement; tingling aggravated during the night; pimples beginning on the face and arms; afterwards scattered over the whole body; these fade and desqua-

mate in about a week, except in the flexures of the joints.

β. L. pilaris: pimples limited to the roots of the hair; desquamate after ten days: often alternating with complaints of the head or stomach. Only a modification of the foregoing.

γ. L. circumscriptus, (fig. 3.) pimples in clusters or patches of irregular forms, appearing in succession over the trunk and limbs; sometimes coalescing; occasionally reviving in successive crops, the old ones decaying as the new ones arise; and persevering for six or eight weeks.

Little medicinal treatment is necessary for these varieties of Lichen. It is sufficient that patients avoid heating themselves by much exercise or by stimulants, and take a light diet, with diluent drinks, and a gentle laxative occasionally. The diluted sulphuric acid is a grateful tonic to the stomach during the period of exfoliation; or a light chalybeate may be taken with advantage at the same period. All strong external applications are improper, especially preparations of mercury and of sulphur, which produce severe irritation. The ancients recommended that the parts should be smeared every morning with saliva; and some demulcent lotion, as a substitute for this uncleanly expedient, prepared with the white of egg, or emulsion of almonds, will relieve the painful sensations of the patient. Lotions of lime-water, or of liquor ammoniæ acetatis much diluted, occasionally also afford relief.

δ. L. lividus: pimples dark-red or livid; chiefly scattered over the extremities; desquamation at uncertain periods, succeeded by fresh crops, often persevering for several months. Its affinity with the Purpura is evinced by the intermixture of petechiæ with the papulæ; and by the similarity of the origin and requisite treatment of the two diseases.

ε. L. tropicus, prickly heat: pimples bright-red, size of a small pin's head; heat, itching, and pricking as of needles; sometimes suddenly disappearing, and producing sickness or other internal affection; relieved by the return of a fresh crop. It attacks new settlers in the West Indies, and other warm regions, and leaves them in a few weeks when inured to the climate.

Many authors have cautioned us against the repulsion of the eruption by cold. The experienced Johnson observes, however, that he never found it possible to repel it by even cold bathing; and seems to think that the idea is visionary. The same author observes as to its treatment, that he found no benefit from external applications, though he used many kinds. "In short, (says he,) the only means which I ever saw productive of any good effect in mitigating its violence, till the constitution got assimilated to the climate, were, light clothing, temperance in eating and drinking, avoiding all exercise in the heat of the day, open bowels, and last, not least, a determined resolution to resist with stoical apathy its first attacks. To sit quiet and unmoved under its pressure is undoubtedly no easy task; but, if we can only muster up fortitude enough to bear with patience the first few minutes of the assault, without being roused into motion, the enemy, like the foiled tiger, will generally sneak off, and leave us victorious for the time."

ζ. L. ferus, (fig. 4.) pimples in clusters or patches of a high red colour, and surrounded by a red halo; the cuticle growing gradually harsh, thickened and chappy; often preceded by general irritation and fever; coldness, shivering, and cephalalgia, being usually the first symptoms observable. Tingling and itching are troublesome symptoms in this complaint: they undergo daily remissions, and are much increased by exercise, washing, &c. This variety is apt to terminate in Impetigo.

The treatment of this lichen consists in administering, at first, some moderate laxatives, mercurial or saline, and afterwards, for some time, the diluted sulphuric acid, three times a-day, in the infusion of roses, or decoction

of cinchona. A simple cooling unguent, as the rose pomatum, or litharge plaster softened with oil of almonds, allays the troublesome heat or itching. All stimulating applications are both painful and injurious.

1. *L. urticatus*, nettle-rash: pimples very minute, slightly elevated, reddish; intolerable itching, especially at night; irregularly subsiding, and re-appearing; chiefly spotting the limbs; occasionally spreading over the body, with gnat-bite shaped wheals; from the violence of the irritation at times, accompanied with vesicles or blisters, and succeeded by an extensive exfoliation of the cuticle. It chiefly attacks children or young adult persons. Frequent tepid bathing, light covering, especially in bed, with the use of small doses of sulphur, or the hydrargyrus sulphuratus niger, internally, appear to relieve the symptoms. The skin will not bear stimulation, and is irritated even by a bath of too high temperature. When it has occurred in feeble and emaciated children, it may often be relieved by chalybeate medicines, as the vinum ferri. This combination of inflamed papulæ, with intense itching, seems to unite the characters of the lichen with those of the next species.

2. *Exormia prurigo*: eruption diffuse; pimples nearly of the colour of the cuticle; when abraded by scratching, oozing a fluid that concretes into minute black scabs; intolerable itching, increased by sudden exposure to heat. Three varieties.

a. *P. mitis*: pimples soft and smooth; itching, at times subsiding; chiefly common to the young, and in spring time. Easily yields to a course of warm ablutions, and the internal use of sulphur.

β. *P. formicans*: pimples varying from larger to more obscure than in the last; itching incessant, and accompanied with a sense of pricking, or stinging, or of the creeping of ants over the body, (whence the name;) duration from two months to two or three years, with occasional but short intermissions; chiefly common to adults.

γ. *P. fenilis*: pimples mostly larger than in either of the above; sometimes indistinct, giving the surface a shining and granulated appearance; itching incessant; common to advanced years, and nearly inveterate.

Plate VII. fig. 1. exhibits the varieties of this species. A points out the slighter eruption of the *Prurigo mitis*; B the deeper and more marked appearance of *P. formicans* and *P. fenilis*. Each of these varieties is apparently the result of gastric and intestinal irritations, and the last of much nervous debility likewise. The first is more easily cured than the two latter; cold spirituous lotions, a strict attention to diet, gentle laxatives (avoiding purges), and, according to the state of the stomach, sulphur and the carbonate of soda, or stomachic medicines, as sarsaparilla, bark, &c. with mineral acids (especially the oxygenated muriatic acid), are the measures chiefly to be depended on. In the *Prurigo fenilis*, pediculi are commonly generated. Oil of turpentine much diluted with oil of almonds appears to exterminate these insects very effectually.

4. *Exormia milium*: pimples very minute; tubercular; confined to the face; distinct; milk-white; hard; glabrous; resembling millet-seeds.

Dr. Good seems to have inserted this species on the authority of Plenck alone; for we find no mention of it in any other author.

Genus IV. *Lepidosis*, [from λεπίς, a scale.] Scale-skin. Efflorescence of scales over different parts of the body, often thickening into crusts. (Squamæ, Willan.) There are four species, with numerous varieties.

1. *Lepidosis pityriasis*, dandriff: patches of fine branny scales, exfoliating without cuticular tenderness. The superficial state of the scales, and the absence of all ulcerative process, distinguishes the varieties of pityriasis from other maladies. Without these distinctive marks we might mistake dandriff for scalded-head (into which it must be confessed it degenerates if neglected), and *P. ver-*

ficolor for secondary symptoms of syphilis. The following are the three varieties.

a. *Pityriasis capitis*: scales minute and delicate; confined to the head; easily separable. Chiefly common to infancy and advanced years. Cutting off the hair, and washing the head frequently with soap and water, are all the means necessary for the cure of dandriff on the head.

β. *P. rubra*: scales common to the body generally; preceded by redness, roughness, and scurfiness of the surface. To give gentle purges, and apply cooling lotions, in the stage of roughness and redness, and to use gentle diaphoretics and the warm salt-water bath when the scales appear, is all that is required in the treatment of this complaint.

γ. *P. vericolor*: scales in diffuse maps of irregular outline and divers colours, chiefly brown and yellow; for the most part confined to the trunk, though occasionally spreading over the limbs. This disorder, from its slow progress, morbid colour, and usual causes, (debility, bad food, and atmospheric vicissitudes) seems to be much connected with a diseased state of the blood. Dr. Willan found internal medicine of little use; but Dr. Bateman recommends the oxygenated muriatic acid and stimulating lotions. He also recommends a trial to be made of pitch in large doses.

2. *Lepidosis lepræ*, leprosy: patches of smooth laminated scales of different sizes, and a circular form. Four varieties.

a. *Lepriasis vulgaris*, common leprosy: scales glabrous; whitish; size of a crown-piece; preceded by smaller, reddish, and glossy, elevations of the skin, encircled by a dry, red, and slightly-elevated, border; often confluent. Beneath the scales the skin is found red, and in early stages smooth. Sometimes covering the whole of the body except the face; but most commonly commencing on the extremities, where the bones lie nearest to the surface; especially below the elbow and the knee, and usually on both arms, or both legs, at the same time. From these points it gradually extends, by the formation of new and distinct patches, along the arms or thighs; to the breast and shoulders, and to the loins and sides of the abdomen. In several cases, Dr. Bateman has observed the eruption most copious and most permanent round the whole lower belly. The hands also become affected, and in many cases the hairy scalp. Though the face is not the seat of large patches, some scales occasionally appears about the outer angles of the eyes, and on the forehead and temples, extending from the roots of the hair. In the more severe cases, the nails of the fingers and toes are often much thickened, and become opaque and of a dirty yellowish hue, and are incurvated at the extremities: their surface is also irregular, from deep longitudinal furrows, or elevated ridges.

When the eruption of *Lepriasis* is moderate in degree and extent, it is not attended with any uneasy sensations, except a slight degree of itching when the patient is heated by exercise, or becomes warm in bed; and a little occasional tingling in certain states of the atmosphere. When it is generally diffused, however, and there is a considerable degree of inflammation in the skin, it is accompanied with extreme soreness, pain, and stiffness; sometimes indeed so great, as to render the motions of the joints impracticable, and to confine the patient to bed. Yet even under these circumstances, there is no constitutional disturbance: and, if no medicine be employed, the disease of the skin may continue for months; or even years, without any material derangement of the system.

Nothing is known of the immediate cause of this disease. It has been observed to follow the taking of certain improper articles of diet. It has been attributed to dirtiness, to over-exertion, and to sudden changes of temperature. It is said to be hereditary, but not contagious. Dr. Bateman asserts that it is a very common disease in this metropolis; but we are inclined to think

he is almost singular in his opinion. On Plate VII. fig. 2. we have given a delineation of this variety; the letters A, B, C, &c. showing the progressive stages of the malady.

β. *L. albidus*, white leprosy: scales whitish; size of a silver penny; depressed in the middle; chiefly confined to the extremities. See fig. 3 of the same Plate.

This disease is milder than the first variety, from which it is distinguished by the indolence of the eruption, the smallness of the scales, and their little disposition to become confluent. Both varieties of Lepriasis are difficult of cure, and have acquired characters for being more obstinate than they really are, in consequence of the empirical practice which has been commonly applied to them.

The practice, to be effectual, must depend entirely on the state of the vascular system of the skin; for, as Dr. Bateman has clearly shown, if we give the same medicines to an inflammatory variety or stage of Lepriasis that are found useful in one of tardy progress, we shall of course do mischief. Therefore, whenever much redness surrounds the scale, when pain, soreness, or stiffness of the joints, is present, our first care should be to mitigate the severity of the cutaneous phlogosis which accompanies the eruption. Ablution with tepid water, or with thin gruel, is the only application that it is allowable to use. Gentle purgatives, a somewhat low diet, with the occasional exhibition of nitre, or small doses of sulphur, a few drops of the liquor potassæ, in conjunction with equally sparing quantities of tincture of hellebore, are measures generally sufficient to remove the irritable state of the skin. But, when this state has degenerated into the indolent form so remarkable in the second variety, and in the advanced stages of the first, stimulating medicines and applications may be tried. The warm salt-water bath, with a moderate degree of friction to loosen the scales, may be first used as the most proper local means; and, if not found successful, may be succeeded by the use of more active stimuli, gradually increasing their strength. A variety of these will be successively required. Spirituous lotions, or those containing the caustic potash, the muriatic acid, or the oxy muriate of mercury, the unguentum picis, or the ung. hydrargyri nitratis, are the most approved local stimuli we know of. The internal stimuli which must be resorted to when dietetic regulations do not operate on the malady, are the arsenical solution, pitch, and steel. Of these the first is the most powerful. They are all given in the usual doses. Dr. Bateman recommends also a decoction of the *Solanum dulcamara* in gradually-increasing proportions, both as an internal and an external application.

γ. *L. nigricans*, or black leprosy, is a more rare variety of the disease, differing externally from the *L. vulgaris* chiefly in the dark and livid hue of its patches, which is most obvious in the margin, but even appears through the thin scales in the area of each patch. See fig. 4. The scales are more easily detached in this form of lepra, and the surface remains longer tender, and is often excoriated, discharging bloody serum, till a new incrustation is formed. This variety of lepriasis occurs in persons whose occupations expose them to the vicissitudes of the weather, and to a precarious diet, with fatigue and watching, and seems of a cachectic nature. It is cured by nutritive food, with moderate exercise, followed by the use of the bark, mineral acids, and sea-bathing.

δ. *L. canescens*, the leprosy of the Jews: scales white; hairs on the patches white or hoary; central depression deep, disease more inveterate. See LEPROSY, vol. xiv.

"Several of the varieties are found also occasionally, as a symptom or sequel, in lues; but distinguished by a livid or chocolate hue." Good, 473.

3. *Lepidosis psoriasis*, scaly tetter, or dry scale: patches of rough amorphous scales; continuous, or of indeterminate outline; skin often chappy.

This irregularity of figure distinguishes Psoriasis from the round scales of Lepriasis; and the five different varie-

ties of this irregularity are the subject of Plate VIII. Moreover it is without the elevated border, the inflamed margin, and the oval or circular outline, of the leprous patches; the surface under the scales is likewise much more tender and irritable in general than in lepriasis; and the skin is often divided by *rhagades*, or deep fissures. It is commonly accompanied by some constitutional disorder, and is liable to cease and return at certain seasons.

The causes of psoriasis are nearly as obscure as those of lepriasis. It is not contagious; with the exception perhaps of the first variety; and this exception is doubtful. Of the following varieties, the first two are sometimes the sequel of lichen.

α. *P. guttata*, (see fig. 1. Plate VIII.) "is a sort of connecting link between this species and lepra, the little patches being distinct, and small, (seldom exceeding two or three lines in diameter,) but with an irregular circumference, and the other peculiar characters just described. They appear on almost every part of the body, and even on the face; but in the latter situation they exhibit only a redness and roughness, without scales. This eruption is most common in the spring, at which season it is liable to recur for several years. It is preceded by general pains, and slight feverishness. In children it often spreads rapidly over the body in two or three days; but in adults its progress is gradual and slow." Bateman, 39.

β. *P. gyrata*, (fig. 5.) scaly patches in serpentine or tortuous stripes; found chiefly on the back, sometimes on the face.

γ. *P. diffusa*, (fig. 2 and 3.) patches diffuse, with a rugged, chapped, irritable, surface; sense of burning and intense itching, increased by warmth and mitigated by cold; skin gradually thickened and furrowed, with a powdery scurf in the fissures; most common over the face, ears, and scalp. Sometimes these extensive eruptions appear at once; but, in other instances, they are the result of numerous minute elevations of the cuticle, upon which small distinct scales, adhering by a central point, are soon formed, and which become gradually united by the inflammation of the intervening cuticle. In either case, as the disorder proceeds, a powdery substance, or very minute scurf, is seen. The heat and painful sensations are much aggravated by the least friction, which also produces excoriation, and multiplies the sore and painful *rhagades*. This form of the disease is most frequent about the face and ears, and the back of the hands; the fingers are sometimes nearly surrounded with a loose scaly incrustation, and the nails crack and exfoliate: but it occasionally occurs in other parts of the body, either at the same time or in succession. It commonly begins with some general indisposition; and a degree of erethism, with occasional sharp pains in the stomach, is sometimes kept up, during several weeks, by the constant irritation which it excites. Its duration is from one to four months, and sometimes much longer; and it is liable to return, in successive years, in the spring or autumn, and sometimes in both seasons.

When limited to the back of the hand, it forms what is vulgarly called the *baker's itch*. On the hands and arms, sometimes on the face and neck, it is peculiarly troublesome to washerwomen; probably from the irritation of the soap they are continually making use of.

δ. *P. inveterata*, (fig. 4.) is the most severe modification of the complaint, beginning in separate irregular patches, which extend and become confluent, until at length they cover the whole surface of the body, except a part of the face, or sometimes the palms of the hands and soles of the feet, with an universal scabiness, interspersed with deep furrows, and a harsh, stiff, and thickened, state of the skin. The production of scales is so rapid, that large quantities are found every morning in the patient's bed. The nails become convex, thickened, and opaque, and are frequently renewed; and, at an advanced period, especially in old people, extensive excoriations

ations sometimes occur, with a discharge of their lymph, followed by a hard dry cuticle, which separates in large pieces. In this extreme degree, it approaches very closely to the inveterate degree of *Lepriasis vulgaris* in all respects; the only difference being in the form of the patches before they coalesce. It is sometimes the ultimate state of the *Psoiriasis diffusa*; and occasionally a sequel of the *Prurigo fenilis*.

6. *P. localis*: stationary; and limited to particular organs; as the lips, eye-lids, prepuce, scrotum, and inside of the hands. In the last form it is peculiarly common to shoe-makers, and artificers in metallic trades, as braziers, tinmen, and silversmiths: probably from filth, and the irritation of the substances they make use of.

"Several of the varieties are found also occasionally as symptoms or sequels of lues, particularly the first three; but are in every instance distinguished by the livid or chocolate hue of the scales." Good, 475.

The same general plan of treatment is applicable to all the different modifications of *Psoiriasis*, the period of its duration, and the degree of accompanying phlogosis, being carefully attended to. In the commencement of the eruption, when it appears suddenly, and the constitution is obviously disordered, a moderate antiphlogistic treatment must be pursued. A gentle purgative should be administered, and the diet made light by abstracting every thing stimulant. This regimen, indeed, is requisite throughout the course of the disease, which is immediately aggravated in sympathy with irritation of the stomach, whether by spices, fermented liquors, pickles, or vegetable acids; whence the disuse of these articles contributes materially to its cure. But, if the constitutional disturbance has subsided, the use of the fixed alkali, combined with sulphur lotum, or with an infusion of cinchona, together with tepid washing with simple water, or milk and water, will gradually remove the complaint. If the scaly patches have extended over a considerable part of the body, and have assumed a more inert and chronic character, it must be viewed in a similar light with the *Lepriasis*, and the remedies recommended for the first and second varieties of that disease must be resorted to.

The shooting and burning pain and itching, in the early and more inflammatory stages of *Psoiriasis*, induce the patient to seek anxiously for relief from local external applications; but he is mortified to find that even the mildest substances prove irritants, and aggravate his distress. A decoction of bran, a little cream, or oil of almonds, sometimes produce ease; but any admixture, even of the oxyd of zinc, or preparations of lead, with these liniments, is commonly detrimental. But the more local, and less inflammatory, eruptions of *Psoiriasis* are considerably alleviated by local expedients. The *psoiriasis* affecting the hands, the scrotum, or the eye, are relieved by the ung. hydrargyri præcipitati albi, or ung. hyd. nitrat. diluted according to the irritability of the skin; but great care is requisite to keep the parts clean by frequent ablation, and to prevent attrition. When the disease affects the lips, nothing acrid can be borne; and much of the cure depends upon securing the parts from irritation, even from heat and cold, by a constant covering of some mild ointment or plaster. In all these cases, some of the internal remedies above mentioned must be at the same time employed, according to the period and other circumstances of the disease.

4. *Lepidosis ichthyosis*, or fish-skin: thick indurated incrustation, encasing the skin to a greater or less extent. It has some tendency to scaldiness, but without the deciduous exfoliations, the distinct and partial patches, or the constitutional disorder, which belong to *lepra* and *psoiriasis*. There are three varieties.

a. *I. simplex*: in its commencement this disease exhibits merely a thickened, harsh, and discoloured, state of the cuticle, which appears, at a little distance, as if it were soiled with mud. When further advanced, the

thickness, hardness, and roughness, become much greater, and of a warty character, and the colour is nearly black. The roughness, which is so great as to give a sensation, to the finger passing over it, like the surface of a file, or the roughest shagreen, is occasioned by innumerable rugged lines and points, into which the surface is divided. These hard prominences, being apparently elevations of the common lozenges of the cuticle, necessarily differ in their form and arrangement in different parts of the body, according to the variations of the cuticular lines, as well as in different stages and cases of the complaint. Some of them appear to be of uniform thickness from their roots upwards; while others have a short narrow neck, and broad irregular tops. The former occur where the skin, when healthy, is soft and thin; the latter where it is coarser, as about the olecranon and patella, and thence along the outside of the arms and thighs. On some parts of the extremities, however, especially about the ankles, and sometimes on the trunk of the body, these excrescences are scaly, flat, and large, and occasionally imbricated like the scales of carp. In other cases, they have appeared separate, being intersected by whitish furrows." The above description, and the delineation on Plate IX. fig. 1. are from Dr. Bateman's splendid work.

This unsightly disease appears in large continuous patches, which sometimes cover the greater part of the body, except the flexures of the joints, the inner and upper part of the thighs, and the furrow along the spine. The face is seldom affected, but the whole skin is in an extremely dry and unperforable condition, and in the palms of the hands and soles of the feet it is much thickened and brittle. The disease often commences in childhood, and even in early infancy; and is in various instances hereditary. The only medicines which seem useful are pitch and arsenic: the former, however, must be taken in immoderate quantities. Dr. Bateman had a patient, who took half an ounce daily, with much amendment. Sulphureous baths, and rubbing with a rough cloth afterwards, will often bring off the scales; and, as these are not soon reproduced, it is a very important palliative measure. Impressed with this fact, Dr. Willan recommends us to pick them off carefully with the nails from any part of the body, while it is immersed in hot water. He says, "The layer of cuticle, which remains after this operation, is harsh and dry; and the skin did not, in the cases I have noted, recover its usual texture and softness; but the formation of the scales was prevented by a frequent use of the warm bath, with moderate friction."

β. *I. cornea*. Several cases of a rigid and horny state of the integuments, sometimes partial, but sometimes extending nearly over the whole body, have been recorded by authors; see Phil. Trans. N° 176. N° 297. and vol. xlviii. pt. ii. p. 380. Also Zacut. Lusitan. Prax. Hist. obs. 188. Ephem. Acad. Nat. Cur. dec. i. p. 89. and occasionally such a condition of the cuticle has been accompanied with the actual production of excrescences of a horny texture. These, however, are rare occurrences.

γ. *I. cornigera*: with horn-like incurvated sproutings; sometimes periodically shed and reproduced. This disease appears to have nothing to do with *Ichthyosis*; the horn usually grows from a wart or tumour; and, if cut off, is reproduced. Hence the only mode of cure is to extirpate it from its roots.

Genus V. *Echphylis*, [from *εκφλυζω*, to boil or bubble up or over; importing vesicular eruption confined in its action to the surface.] Blains. Orbicular elevations of the cuticle containing a watery fluid. There are four species, and many varieties.

1. *Echphylis pompholyx*, blebs: eruption of blebs containing a reddish, transparent, fluid; mostly distinct; breaking and healing without scale or crust. They are distinguished from *Pemphigus* by the absence of fever,

and of inflammation round their bases. There are three varieties.

α. *P. benignus*, water-blebs: blebs pea-sized or filbert-sized; appearing successively on various parts of the body; bursting in three or four days, and healing readily.

β. *P. diutinus*, (fig. 2. Plate IX.) Blebs gradually growing from small vesicles to the size of walnuts; yellowish; often spreading in succession over the whole body, and interior of the mouth; occasionally reproduced, and forming an excoriated surface with ulcerations. Often preceded by languor or other general indisposition for several weeks. Duration from two to four or five months.

This disease chiefly affects persons of debilitated habits; and is very severe in the aged. It seems to originate under different conditions of the body, but often after continued fatigue and anxiety, with low diet; sometimes from intemperance; and not unfrequently it is connected with anasarca, or general dropsy, with scurvy, and other states of the constitution, in which the powers of the cutaneous circulation are impaired. It is most troublesome and obstinate in old persons, in whom the transparent bullæ sometimes equal the size of a turkey's egg, while others of a smaller size are intermixed with them, which appear dark and livid. When broken, they leave a black excoriated surface, which sometimes ulcerates. The warm bath, used every second day, was considered by Dr. Willan as the most active palliative, and the best remedy. Bateman has seen the decoction of cinchona, with cordials and diuretics, of considerable advantage in these cases, especially when the eruption was combined with anasarca. In young persons in whom the pompholyx is seldom severe, these remedies are affirmed by Dr. Willan to be successful within two or three weeks; but the warm bath seems to increase both the tingling in the skin, and the numbers of the vesications, in these patients.

γ. *P. quotidianus*: blebs with a dark red base, appearing at night and disappearing in the morning. Found chiefly in the hands and legs. Vandermonde relates a case in which the accessions were reversed; the blebs appearing in the morning, and disappearing at night.

δ. *P. solitarius*: solitary; but reproductive in an adjoining part; the bleb very large, and containing a tea-cup full of lymph. Preceded by tingling, often accompanied with languor. This is a rare form of the disease, and seems to affect only women. Cinchona internally, and linseed poultices, followed by light dressings to the sores externally, were employed with advantage in three cases seen by Dr. Willan.

2. *Echphylis herpes*, tetter: eruption of vesicles in small distinct clusters; with a red margin; at first pellucid; afterwards opaque; accompanied with itching or tingling; concreting into scabs. Duration from fourteen to twenty-one days. Here we have six varieties.

α. *H. miliaris*, (Plate IX. fig. 3.) Vesicles millet-sized: pellucid; clusters commencing at an indeterminate part of the surface, and progressively strewed over the body; succeeded by fresh crops. It is commonly preceded by a slight febrile attack for two or three days. The small transparent vesicles then appear, in irregular clusters, sometimes containing colourless, and sometimes a brownish lymph; and for two or three days more, other clusters successively arise near the former. When very minute, they spread extensively; but, if at maturity they attain a considerable size and an oval form, we seldom see more than two or three clusters together; and sometimes there is only a single cluster. The included lymph sometimes becomes milky or opaque in the course of ten or twelve hours; and about the fourth day the inflammation round the vesicles assumes a duller red hue, while the vesicles themselves break; and discharge their fluid, or begin to dry and flatten, and dark or yellowish scabs concrete upon them. These fall off about the eighth or tenth day, leaving a reddened and irritable surface,

which slowly regains its healthy appearance. As the successive clusters go through a similar course, the termination of the whole is not complete before the thirteenth or fourteenth day.

β. *H. exedens*, *nirles*: vesicles hard; of the size and origin of the last; clusters thronged; fluid dense, yellow, or reddish; hot, acrid, corroding the subjacent skin, and spreading in serpentine trails.

This disease is rare; and we know not on what authority Dr. Good has stated that the *nirles* is the same disease as that described by Galen, from whom his definition is derived. We subjoin Dr. G.'s abstract of Galen's opinion: "Herpes, according to Galen, is an eruption of minute and crowded vesicles, of the size of millet-seeds, excited on the surface of the skin, filled with an acrid bilious secretion; and consists of two species; the one containing in its vesicles a milder and more aqueous fluid, called from the size of the vesicles *Herpes miliaris*, which merely seems to burn, or corrode; the other containing a thicker fluid of a higher heat and colour, and so acrid as actually to corrode the continuity of the subjacent skin, still creeping along in a serpentine direction, as the term herpes imports; and hence denominated by Hippocrates *Herpes esthiomenos*."

γ. *H. zoster*: shingles: vesicles pearl-sized; the clusters spreading round the body like a girdle: at times confluent. Occasionally with general irritation or other constitutional affection; being usually preceded for two or three days by languor and loss of appetite, rigors, head-ache, sickness, and a frequent pulse, together with a scalding heat and tingling in the skin, and shooting pains through the chest and epigastrium. Sometimes, however, the precursory febrile symptoms are slight, and scarcely noticed; and the attention of the patient is first attracted by a sense of heat, itching, and tingling, in some part of the trunk, where he finds several red patches of an irregular form, at a little distance from each other, upon each of which numerous small elevations appear, clustered together. These, if examined minutely, are found to be distinctly vesicular; and, in the course of twenty-four hours, they enlarge to the size of small pearls, and are perfectly transparent, being filled with a limpid fluid. The clusters are of various diameter, from one to two, or even three, inches, and are surrounded by a narrow red margin, in consequence of the extension of the inflamed base a little beyond the congregated vesicles. During three or four days, other clusters continue to arise in succession, and with considerable regularity; that is, nearly in a line with the first, extending always towards the spine at one extremity, and towards the sternum, or linea alba of the abdomen, at the other, most commonly round the waist like half a sash, but sometimes like a sword-belt across the shoulder.

While the new clusters are appearing, the vesicles of the first begin to lose their transparency, and on the fourth day acquire a milky or yellowish hue, which is soon followed by a bluish or livid colour of the bases of the vesicles, and of the contained fluid. They now become somewhat confluent, and flatten or subside, so that the outlines of many of them are nearly obliterated. About this time they are often broken, and for three or four days discharge a small quantity of a serous fluid; which at length concretes into thin dark scabs, at first lying loosely over the contained matter, but soon becoming harder, and adhering more firmly, until they fall off about the twelfth or fourteenth day. The surface of the skin is left in a red and tender state; and, where the ulceration and discharge have been considerable, numerous cicatrices or pits are left. As all the clusters go through a similar series of changes, those which appear latest arrive at their termination several days later than the first; whence the disease is sometimes protracted to twenty or even twenty-four days, before the crusts exfoliate. In one or two instances the vesicles have been known to terminate in numerous small ulcers, or suppurating

rating foramina, which continued to discharge for many days, and were not all healed before the end of the fourth week. The febrile symptoms commonly subside when the eruption is completed; but sometimes they continue during the whole course of the disease, probably from the incessant irritation of the itching and smarting connected with it. In many instances, the most distressing part of the complaint is an intense darting pain, not superficial, but deep-seated in the chest, which continues to the latter stages of the disease, and is not easily allayed by anodynes: sometimes this pain precedes the eruption.

Herpes zoster is not contagious. Its causes are not very obvious: it is most frequently traced to pulmonic, gastric, or intestinal irritation, and is commonest in spring and autumn. As it passes through its regular stages spontaneously and invariably, it never requires any thing to be done, except to adopt a cooling regimen.

δ. *H. circinatus*, ring-worm; (fig. 4.) vesicles with a reddish base, uniting in rings; the area of the rings slightly discoloured; often followed by fresh crops.

This is a very slight affection, being unaccompanied with any disorder of the constitution. It appears in small circular patches, in which the vesicles arise only round the circumference: these are small, with moderately red bases, and contain a transparent fluid, which is discharged in three or four days, when little prominent dark scabs form over them. The central area, in each vesicular ring, is at first free from any eruption; but the surface becomes somewhat rough, and of a dull red colour, and throws off an exfoliation, as the vesicular eruption declines, which terminates in about a week with the falling off of the scabs, leaving the cuticle red for a short time. The whole disease, however, does not conclude so soon: for there is commonly a succession of the vesicular circles, on the upper parts of the body, as the face and neck, and the arms and shoulders, which have occasionally extended to the lower extremities, protracting the duration of the whole to the end of the second or third week. No inconvenience, however, attends the eruption, except a disagreeable itching and tingling in the patches.

The herpetic ringworm is most commonly seen in children, and is deemed contagious. Another form of *H. circinatus* sometimes occurs, in which the area of the circles is covered with close-set vesicles, and the whole is surrounded by a circular inflamed border. The vesicles are of a considerable size, and filled with transparent lymph. The pain, heat, and irritation, in the part, are very distressing; and there is often a considerable constitutional disturbance accompanying the eruption. One cluster forms after another in rapid succession on the face, arms, and neck, and sometimes on the day following on the trunk and lower limbs. The pain, feverishness, and inquietude, do not abate till the sixth day of the eruption, when the vesicles flatten, and the inflammation subsides. On the ninth and tenth days a scabby crust begins to form on some, while others dry and exfoliate; the whole disease terminating about the fifteenth day.

ε. *H. iris*, (fig. 5.) occurs in small circular patches, each of which is composed of concentric rings of different colours. Its usual seat is on the back of the hands, or the palms and fingers, sometimes on the instep. Its first appearance is like an efflorescence; but, when it is fully formed, not only the central umbo, but the surrounding rings, become distinctly vesicular. The patches are at first small, and gradually attain their full size, which is nearly that of a sixpence, in the course of a week or nine days, at the end of which time, the central part is prominent and distended, and the vesicular circles are also turgid with lymph; and, after remaining nearly stationary a couple of days, they gradually decline, and entirely disappear in about a week more. The central vesicle is of a yellowish white colour; the first ring surrounding it is of a dark or brownish red; the second is

nearly of the same colour as the centre; and the third, which is narrower than the rest, is of a dark red colour; the fourth and outer ring, or areola, does not appear until the seventh, eighth, or ninth, day, and is of a light red hue, which is gradually lost in the ordinary colour of the skin.

ζ. *H. localis*, (*Herpes labialis*, *H. præputialis*, &c. *Bateman*.) Seated on a particular organ, chiefly the lip and prepuce, and not migratory. Very little attendance is required in herpetic diseases. They generally run their career without being either shortened or delayed by it. There is often, however, some constitutional disturbance accompanying the various forms, which it may be of consequence to attend to, according to the appearance of the eruption and the feelings of the patient. Astringents and anodyne lotions may be used; but they must be regulated by the general principles already laid down at the head of this order.

3. *Ecphlysis rhyppia*; (*Rupia*, *Bateman*.) Eruption of broad, flattish, distinct vesicles; base slightly inflamed; fluid sanious; scabs thin, and superficial; easily rubbed off and reproduced. Three varieties.

α. *R. simplex*; scab flat; livid or blackish: the subjacent skin of the same hue.

β. *R. prominens*; scab elevated and conical like a limpet's shell; rapid in its progress, and succeeded by an ulcer.

These varieties of *Rupia* are to be combated by supporting the system, by means of good, light, nutritious, diet, and by the use of alterative and tonic medicines; such as Plummer's pill, cinchona, and sarsaparilla. The first is represented by fig. 1. Plate X. the second by fig. 2. of the same engraving.

γ. *R. escharotica*: sanious discharge erosive, producing gangrenous eschars.

4. *Ecphlysis eczema*, heat-eruption: eruption of minute acuminate vesicles, distinct, but closely crowding on each other, pellucid or milky; with troublesome itching or tingling; terminating in thin scales or scabs; occasionally surrounded by a blushing halo. Chiefly produced by the heat of the sun; and mostly attacks the hands and other parts that are principally exposed to its rays.

The eruption is successive, and has no regular period of duration or decline: it commonly continues for two or three weeks, without any particular internal disorder. The included lymph becomes more milky, and is gradually absorbed, or dried into brownish scales, which exfoliate, or into brownish yellow scabs, of the size of a small pin's head, especially when the vesicles are broken. But successive eruptions of the vesicles are apt to appear, which terminate in a similar manner by exfoliation or scabbing; and in those persons who, by the peculiar irritability of their skin, are much predisposed to the disorder, it is thus continued many weeks, to the end of autumn, or even prolonged to the winter. When this happens, the vesicles generally pour out an acrid serum, by which the surface is inflamed, rendered tender, and even slightly ulcerated, and the disease assumes the form of *Impetigo*.

The course of this disorder does not appear to be materially shortened by the operation of medicine. The mineral acids, with a decoction of cinchona, or other vegetable tonic, and a light but nutritious diet, seem to be most effectual in diminishing the eruption. When it has occurred after long-continued travelling, or any other severe fatigue, and appears to be accompanied with some degree of exhaustion of the powers of the constitution, a course of *serpentaria*, or *sarsaparilla*, is exceedingly beneficial. Active and repeated purgation is adverse to the complaint. Simple ablution with tepid water, contributes to relieve the smarting and tingling of the parts affected; but they do not bear unguents, or any stimulant application.

Genus VI. *Ecpyeſis*, [*εκπυω*, to ſuppurate, of *πυον*, pus.] Running Tetter. Generic characters—Eruption of ſmall puſtules, diſtinct or confluent; hardening into cruſtular plates. There are four ſpecies, with numerous varieties.

1. *Ecpyeſis impetigo*, the common running ſcald, or tetter: puſtules cluſtering, yellow, itching; terminating in a yellow ſcaly cruſt, interſected with cracks.

Impetigenous eruptions are diſtinguiſhed from thoſe of an herpetic nature by their being preceded by ſmall *puſtules*, while the latter are always preceded by *veſicles*. The diſcharge, too, from the *Impetigo* is, generally ſpeaking, more profuſe than that from *Herpes*. Notwithſtanding this diſtinction, it may be doubted whether the two ſpecies do not ſometimes run into one another. It is no uncommon thing to ſee both *veſicles* and *puſtules* on the ſame perſon. This combination, which is very painful and difficult of cure, appears chiefly on the hand, the *veſicles* of which ſeem to contain a very acrimonious fluid, ſince, whenever this runs, the ſkin is gradually denuded. The *veſicles* are ſlower in their progrefs than the *puſtules*; and, when broken, have a morbid ſore, ſecreting a thin ichor. There are ſix varieties.

a. I. *ſparſa*, (ſee fig. 3, Plate X.) Cluſters looſe; irregularly ſcattered; chiefly over the extremities; often ſucceeded by freſh crops, and forming in old and debilitated perſons troubleſome ulcers.

β. I. *herpetica*, (fig. 4.) (*Impetigo figurata*, *Bateman*. *Herpes*, *Cullen*.) Cluſters circular; crowded with puſtules, intermixed with *veſicles*; often with exterior concentric rings ſurrounding the interior area as it heals; itching accompanied with heat and ſmarting. Chiefly on the hands and wriſts.

This is the moſt common variety of the moiſt tetter. It appears in circumscribed patches, of various figure and magnitude, which are uſually ſmaller and more circular on the upper, and larger, oval, and irregular, on the lower, extremities. The patches conſiſt at firſt of cluſters of the yellow *pyſdracious* puſtules, ſet cloſe together, and ſurrounded by a ſlight inflammatory border; the whole being ſomewhat raiſed, but the puſtules not very prominent or acuminate. In a few days the puſtules break, and diſcharge their fluid; the ſurface becomes red and excoriated, ſhining as if it were ſtretched, but exhibiting numerous minute pores, from which a conſiderable ichorous diſcharge is poured out, accompanied with much troubleſome itching, heat, and ſmarting. The diſcharge ſoon concretes partially into thin yellowiſh or greeniſh ſcabs; but ſtill continues to ooze from under the ſcab, which it forms. In the courſe of three or four weeks, as the quantity of the diſcharge dimin-iſhes, the ſcabs dry and fall off, leaving the ſurface of the cuticle red, rough, and ſomewhat thickened, and at the ſame time extremely brittle, and liable to crack and to be excoriated; ſo that the ichorous diſcharge and ſcabbing are eaſily reproduced, and the diſeaſe is often thus much prolonged in its duration. Occasionally freſh crops of the *pyſdracious* puſtules re-appear, as at the commencement; and the whole courſe of the eruption is repeated.

When the *Impetigo herpetica* is beginning to heal, the patches undergo a proceſs ſomewhat ſimilar to that which takes place in the *Lepriſis vulgare*. The amendment commences at the centre of the patch, which firſt ſubſides, leaving the border elevated: at length this alſo diſappears; but the cuticle, which was the ſeat of the patch, remains for ſome weeks red, ſhining, and tender.

The *Impetigo herpetica* and *ſparſa* are ſometimes con-founded with two contagious diſeaſes, of the puſtular order, *Porrigo* and *Scabies*. The appellation of *ring-worm*, which is popularly given to the oval or circular patch of the firſt, has partly contributed to occaſion this miſtake. They differ, however, from the contagious circles of *Porrigo*, inas-much as the I. *figurata* ſeldom affects children, occurs principally on the extremities, and they do not continue to diſcharge a purulent and glutinous, but, after the firſt eruption, an ichorous humour; nor

do they form the thick, ſoft, and copious, ſcabs of *Porrigo*: not to mention the abſence of contagion.

The prevalence of transparent *veſicles* in the patches of *Impetigo*, may miſlead an incautious or inexperienced obſerver into a ſuſpicion that the diſeaſe, is *Scabies*: but the diſtribution of the eruption in patches, the copious exudation of ichor, the rough, reddened, and ſiftured, cuticle, the magnitude and ſlow progrefs of the *veſicles*, and the heat and ſmarting, which accompany the itching, in *Impetigo*, will ſerve, in general, to determine the diagnosis. In the ſtrictly purulent form of *Scabies*, the puſtules about the hands ariſe to a much greater magnitude and elevation than the *pyſdracia*; they are filled with a thick yellow pus, and are more conſiderably inflamed round their baſe. The *Impetigo*, in its advanced ſtage is, however, more liable to be miſtaken by common obſervers, and is in fact daily miſtaken, for *Psoriasis* or *Lepra*; as a ſufficient diſcrimination is not made between the laminated and ſcale-like concretions of the ichorous matter, and the exfoliations of morbid cuticle, which conſtitute the true ſcab. But the *scaly diſeaſes emit no fluid*; and the very exiſtence of a diſcharge, however ſlight, is ſufficient to determine the diagnosis of the eruption.

In the incipient ſtate of theſe two forms of *Impetigo*, it is uſeful to adminiſter ſulphur internally, in ſuch quantities as not to induce purging; and, if there is much irritability or inflammation of the cuticle, a portion of ſoda, nitre, or cryſtals of tartar, may be advantageouſly combined with it. The *Impetigo ſparſa* commonly yields to theſe medicines, if diligent ablu-tion with tepid water be at the ſame time employed. But, when the diſeaſe is of long ſtanding, it requires a treat-ment ſomewhat ſimilar to that recommended for invete-rate *Psoriasis*; namely, the diet-drinks, decoctions of ſarſaparilla and cinchona, with the fixed alkalis, and antimonials. The mercurial alteratives, however, in this affection, are of eſſential aſſiſtance to this plan of cure; ſuch as ſmall doſes of cinnabar, the *hydrargyrus cum ereta*, or the pill of Dr. Plummer.

The external applications adapted to theſe forms of *Impetigo*, are the mild deſiccative unguents; for, in the majority of caſes, the irritable ſurface of the tetter will not bear ſtimulants with impunity. When the diſcharge is conſiderable, the ointments prepared with the oxyd of zinc, alone, or united with ſaturnine ointment, or with the white precipitated oxyd of mercury, are the moſt efficacious, in allaying the inflammatory condition of the excoriated ſurface, and in reducing the quantity of the diſcharge. When there is leſs of this irritability and exudation, the tar-ointment, or the ointment of the nitrate of mercury, much diluted, will be found beneficial. But the too active employment of this or any other ſtimulating unguent, often does harm.

In theſe irritable forms of *Impetigo*, in which *veſicles* abound, the zinc, and ſaturnine applications, and even ſimple lard, occaſion an aggravation of the ſymptoms. In theſe caſes it is particularly neceſſary to keep the parts covered, with a view to avoid the effects of friction from the clothes, as well as of heat and of cold; to waſh the ſurface daily with ſome emollient fluid, ſuch as milk and water, or an infusion of bran; to interdict the uſe of ſoap; and to beſmear the parts with cream, or an emulſion of almonds. A lotion prepared by boiling mallow, digitalis, and poppy-heads, has been found ſerviceable, where the parts were very painful. In many caſes, however, the ſtiffneſs, which enſues upon the ſpeedy drying of theſe lotions, renders it impoſſible to uſe them, and it is neceſſary to cover the part lightly with dry lint only, or to interpoſe between it and the diſeaſed ſurface a ſprinkling of the oxyd of zinc: ſometimes, however, the application of linen dipped in melted ſuet, affords relief, when no other greaſy ſubſtance can be uſed.

In the drier and leſs irritable forms of the *Impetigo*, the uſe of the waters of Harrowgate is the moſt effectual remedy, and likewiſe the beſt preventive of its return:

under the same circumstances, the warm sea-water bath, followed by a course of bathing in the open sea, is productive of great benefit. But, during the existence of any actual inflammation, the irritation of salt water is decidedly injurious.

γ. I. erythematica: pustules scattered, preceded by erythematic blush and intumescence; often by febrile or other constitutional affection. Chiefly in the face, neck, and chest.

This variety should be treated in the same manner as erysipelas. As the erythema goes off, the skin may be gently stimulated by sulphureous or salt-water baths, and bark and the acids exhibited internally.

δ. I. laminosa: pustules confluent; chiefly in the extremities; the aggregate scabs forming a thick, rough, and rigid, casing round the affected limb, so as to impede its motion; a thin ichor exuding from numerous cracks.

This variety requires the same internal medicines which have been recommended for the inveterate forms of the preceding varieties, especially the sulphureous waters. The chief peculiarity of its treatment consists in clearing the surface of its incrustation, and correcting the morbid action of the superficial vessels. The thick scab can only be softened, and gradually removed, by perseverance in the application of the steam of warm water to it, for a short time, daily. Those parts of the surface, which are thus cleared, must be covered with soft linen, after tepid ablation, twice a-day; and sometimes the unguentum zinci, or a much-diluted ointment of nitrate of mercury, may be used.

ε. I. exedens: the purulent discharge corroding the skin and cellular membrane. Chiefly on the side of the chest or trunk.

This rare and intractable disease is at present scarcely known. Dr. Bateman says he had never seen an instance of it. The few instances which have been recorded have terminated fatally.

ζ. I. localis: confined to a particular part, mostly the hands or fingers; and produced by external stimulants, as sugar or lime.

This variety includes those common forms of tetter excited by peculiar stimuli: hence it comprehends the baker's itch, grocer's itch, bricklayer's itch, and the eruption arising from friction with tartarized antimony, &c.

η. Ecpyesis porrigo, pustules straw-coloured; fluid viscid; concreting into scales or yellow scabs.

There are six varieties of this species. Their classification is adopted from Bateman; but many circumstances seem to show that they are not naturally united. Mr. Plumbe especially objects to our considering the crusta-lactea (P. crustacea) as a variety of porrigo. Of the others it may be remarked, that the opinion of Willan, that each of these varieties might be produced by one another, is not consonant with the results of more extended observation, or of direct experiment. Small doses of mercury are highly useful in this disease: the hydrargyri cum creta is perhaps the best form for very young patients. The health of the person who suckles the child should likewise be attended to. As local applications in the beginning of the malady, tepid ablation or the saturnine ointment, and afterwards, for the purpose of slight stimulation, the Ung. hyd. nitrati, are all that are required.

α. P. crustacea, milky scall, or tetter; (Plate XI. fig. 1.) Pustules commencing on the cheeks or forehead in patches; scabs often confluent, covering the whole face with a continuous incrustation. Found chiefly in infants during the period of lactation.

It is liable to considerable variation in its course; the discharge being sometimes profuse, and the surface red and excoriated; and at other times scarcely perceptible, so that the surface remains covered with a dry and brown scab. When the scab ultimately falls off, and ceases to be renewed, a red, elevated, and tender, cuticle, marked with deep lines, and exfoliating several times, is left

behind; differing from that which succeeds to Impetigo, inasmuch as it does not crack into deep fissures. Most commonly, however, the disease terminates favourably, though its duration is often long and uncertain. It sometimes suddenly puts on the appearance of cessation, and afterwards returns with severity. Sometimes it disappears spontaneously soon after weaning, or after the cutting of the first teeth; and sometimes it will continue from two or three months to a year and a half, or even longer. It is remarkable however, that, whatever excoriation may be produced, no permanent deformity ensues.

β. P. galeata, scalled head: pustules commencing on the scalp, in distinct, often distant, patches; gradually spreading till the whole head is covered as with a helmet; cuticle, below the scabs, red, shining, dotted with papillous apertures, oozing fresh matter; roots of the hair destroyed: contagious. Found chiefly in children, especially during dentition. (Tinea, Alibert, Sauv. &c.)

Sometimes a narrow border of hair is left uninjured. It is then called ringworm of the scalp; but has no affinity with ringworm, properly so called.

The first symptoms of the scalled head are a falling of some of the hair, and an unpleasant itching of the scalp; then arise distinct and distant clusters of small yellow pustules, which soon break, or are broken by the child's scratching them, and form scabs, which become thick and hard by accumulation. If the scabs are removed, however, the surface of the patches is left red and shining, but studded with slight elevated points, or papulae, in some of which minute globules of pus again appear in a few days. By these repetitions of the eruption of *achores*, the incrustations become thicker, and the areas of the patches extend, often becoming confluent, if the progress of the disease be unimpeded, so as to affect the whole head. As the patches extend, the hair covering them becomes lighter in its colour, and sometimes breaks off short; and, as the process of pustulation and scabbing is repeated, the roots of the hair are destroyed, and at length there remains uninjured only a narrow border of hair round the head.

Such is the description of scalled head as it occurs in this country. In France we see much more violent symptoms; as the following description, taken from Alibert, sufficiently indicates. "The individuals affected with tinea, generally feel, at first, a pruritus, more or less violent, on the head. The scalp, on certain points of its surface, next becomes red, chaps, or even becomes a little tumefied. A swelling of the cervical glands sometimes accompanies the complaint, more rarely a head-ache. The itching daily increases; and pustules or vesicles are seen surrounded by an inflamed areola. In some cases no trace of ulceration can be perceived, a reddish viscid humour appearing to exude from the dilated mouths of the glandular follicles. Presently the hair becomes agglutinated by this viscid humour, which issues, flow after flow, resembling melted rosin, forming crust upon crust of scabby or scaly layers, horrible and disgusting to behold! Meantime a putrid sanies beneath corrodes the hairs even to their bulbs, destroys the neighbouring cellular tissue, and threatens the cranium itself. Some of those afflicted fall a prey to violent nocturnal pains; others into a state of emaciation which entirely arrests their growth. It is more especially when tinea is congenital, or its treatment neglected, that it commits such dreadful ravages. It is then that we see abscesses form in the scalp; glandular swellings in the occiput, neck, shoulders, and armpits; immense enlargements of the ears; redness, lacrymation, irritation of the eye-lids; disgusting odour from the confluent pustules; falling of the hair; torpor and inaptitude of the intellects; defect of physical power; even of the generative process."

The disease seems to originate spontaneously in children of feeble and flabby habit, or in a state approaching to

marasmus,

marasmus, who are ill-fed, uncleanly, and not sufficiently exercised; but it is generally allowed, at least in this country, to arise chiefly from infection. The physicians of the Hôpital St. Louis, a very well filled depot for cutaneous diseases, assert that the contagious power of tinea have been much over-rated; and that it is often impossible to communicate by inoculation. The same authorities assert, that it is invariably hereditary. Porrigio galeata is confessedly a very difficult disease to cure.

With regard to the constitutional treatment, this is of the utmost consequence. It has appeared to us, that to the neglect of this circumstance in the treatment of the early stage of Porrigio most of those old and inveterate cases which are so often met with, are to be attributed. A recent author (Plumbe's Practical Treatise on Ring-worm of the Scalp, 1821,) indeed, asserts the contrary; but we have had too many instances handed down to us of the most dangerous phlogoses caused by the repulsion, and cured by the appearance, of this eruption, to entertain the least concurrence in this opinion. The first stage of porrigio is evidently inflammation. It is, in most cases, that irritative kind of inflammation almost always connected with a bad state of general health. In the majority of cases, a strict attention to the diet and alvine discharges is all that is required. We have seen cases, however, in which it was also necessary to remove general plethora by small bleedings, a state of body which naturally increases in a great degree all inflammatory sores. The secretions of the kidneys should be most especially excited in *P. galeata*. The sympathy between the secretion of urine and of sweat is obvious enough: hence terebinthines have been found useful in porrigio. In the same stage much will depend on the local measures which are used. These should be (in the inflammatory stage) confined to the following: 1. The head should be frequently washed and well fomented with tepid water; the hair in some parts shaved; but, when sores are plentiful, carefully cut the loose hairs, and those which are quite loose may be taken out with a pair of pincers. 2. After the ablution, the head should be well dried with a soft cloth. 3. A mild ointment of spermaceti and suet to be spread on lint, and applied over the sore parts; a cap being placed over this, which must fit pretty tight; for pressure will do some good in this complaint. These little attentions, unimportant as they appear, are of the highest consequence in the treatment of Porrigio. As to how long these measures are to be persisted in, must be a matter entirely at the discretion of the practitioner. Certain it is, that most men err by stimulating too soon; hence, if no very great amendment took place, we should not depart from this plan too hastily, and, at all events, not while redness and extreme tenderness remained, nor until a dry and indolent state of the scab is sufficiently apparent. It is in this stage that stimuli are requisite: and of these the records of medicine furnish a large number. Most of these have in some cases cured Porrigio; but, like all medicines of this class, they are very uncertain in their operation. They must be used at first in small proportions, and may be gradually augmented to such an excess, that even a blister may ultimately be borne. The stimuli most in request are the mercurial ointments, as the ung. hydrargyri præcipitati, hyd. nitrico-oxydi, and especially of the hydrargyrus nitratus; those prepared with sulphur, tar, hellebore, and turpentine, and the unguentum elemi. To these may be added, on more dubious authority, preparations of mustard, staves-acre, black pepper, capicum, galls, rue, and other acrid vegetable substances. Lotions containing the sulphates of zinc and copper, or the oxy muriate of mercury, in solution, are occasionally beneficial. The more caustic substances are often extremely successful. A lotion containing from three to six grains of the nitrate of silver in an ounce of distilled water, has removed the disease. Touching the patches with the muriated tincture of iron, or with any of the mineral acids, slightly diluted,

in some cases removes the morbid cuticle, and the new one assumes a healthy action. The application of a blister, in like manner, sometimes effectually accomplishes the same end. Alibert recommends a mixture of equal parts of sulphur and charcoal incorporated with various proportions of cerate.

γ. *P. favosa*, honey-comb scall or tetter, (fig. 3.) Pustules common to the head, trunk, and extremities; pea-sized; flattened at the top; in clusters, often uniting; discharge fetid; scabs honey-combed, the cells filled with the fluid.

This disease begins with an eruption of large soft straw-coloured pustules. These are not in general globular, with a regularly-circular margin; but somewhat flattened, with an irregular edge, and surrounded by a slight inflammation. They occur on all parts of the body; sometimes on the scalp alone, and sometimes on the face, or on the trunk and extremities only; but most commonly, they spread from the scalp, especially from behind the ears, to the face, or from the lips and chin to the scalp, and occasionally from the extremities to the trunk and head. They are usually accompanied with considerable itching. Children from six months to four years of age are most liable to this eruption; but adults are not unfrequently affected with it.

The pustules, especially on the scalp, appear at first distinct, though near together; but on the face and extremities they generally rise in irregular clusters, becoming confluent when broken, and discharging a viscid matter, which gradually concretes into greenish, or yellowish semi-transparent scabs. The disease extends, by the successive formation of new blotches, which sometimes cover the chin, or surround the mouth, and spread to the cheeks and nose; and on the scalp the ulceration ultimately extends, in a similar manner, over the whole head, with a constant discharge, by which the hair and moist scabs are matted together. Under the last-mentioned circumstances, pediculi are often generated in great numbers, and aggravate the itching and irritation of the disease. On the face, too, a similar aggravation of the symptoms is occasioned, in children, by an incessant picking and scratching about the edges of the scabs, which the itching demands, and by which the skin is kept sore, and the ulceration extended; while the scabs are thickened into irregular masses, not unlike a honey-comb, by the accumulating and concreting discharge. On the lower extremities considerable ulcerations sometimes form, especially about the heels, and roots of the toes; and the ends of the toes are sometimes ulcerated, the pustules arising at their sides, and even under the nails.

The ulcerating blotches seldom continue long, or extend far, before the lymphatic system exhibits marks of irritation, probably from the acrimony of the absorbed matter. When the scalp or the face is the seat of the disease, the glands on the sides of the neck enlarge and harden, being at first perceived like a chain of little tumours, lying loose under the skin; and the submaxillary and parotid glands are often affected in a similar manner. At length some of them inflame, the skin becomes discoloured, and they suppurate slowly, and with much pain and irritation. The eruption, in these situations, is likewise often accompanied by a discharge from behind the ears, or from the ears themselves, with a tumid upper lip, and inflammation of the eyes, or obstinate ulcerations of the edges of the eyelids. When the eruption appears on the trunk, although the pustules there are smaller and less confluent, and the scabs thinner and less permanent, the axillary glands are liable to be affected in the same way.

The discharge from the ulcerated surfaces, especially on the scalp, when the crusts and coverings are removed, exhales an offensive rancid vapour, not only affecting the organs of smell and taste, but the eyes, of those who examine the diseased parts. The acrimony of the discharge is also manifested by the appearance of inflammation,

tion, followed by pustules, ulceration, and scabbing, on any portion of the sound skin, which comes into frequent contact with the parts diseased: thus, in young children, the breast is inoculated by the chin, and the hands and arms by contact with the face. The arms and breast of the nurse are also liable to receive the eruption in the same manner; but it is not so readily communicated to adults as to children.

The *P. favosa* requires the exhibition of the same alteratives, internally, as have been recommended for the cure of the *P. crustacea*, in doses proportioned to the age and strength of the patient. The diet and exercise should also be regulated with care: all crude vegetables and fruits on the one hand, and stimulating substances, whether solid or fluid, on the other, should be avoided; and milk, puddings, and a little plain animal food or broths, should be alone recommended. If the patient be of a squalid habit, or suffers under any stromous affection, the bark and chalybeates, or the solution of muriate of barytes united with the former, will contribute materially to the restoration of health. There is commonly some degree of inflammation present, which contra-indicates the use of active stimulants externally. The unguentum zinci, or the ung. hydrargyri præcipitati albi, mixed with the former, or with a saturnine ointment, will be preferred as external applications, especially where the discharge is copious: and the ointment of the nitrate of mercury, diluted with about equal parts of simple cerate and of the ceratum plumbi superacetatis, is generally beneficial; but the proportion of the unguentum ceræ must be varied according to the degree of inflammation. A poultice is often useful for the larger ulcerations.

A severe modification of this malady sometimes attacks the face of adults, but is easily removed by a course of purges and by emollient poultices.

♂. *P. lupinosa*, dry tetter: pustules minute, in small patches, mostly commencing on the scalp; patches terminating in dry delving scabs, resembling lupine-seeds; the interstices often covered with a thin whitish exfoliating incrustation. Found chiefly in early life.

This requires the same constitutional treatment as the preceding varieties. Its local treatment must also be the same, varying however the form of these to a due relation with the intensity of the disease.

♂. *P. furfuracea*, scurfy tetter, (see fig. 2. Plate XI.) Pustules very minute, with little fluid; seated on the scalp; terminating in scurfy scales. Chiefly found in adults.

This variety differs from the others in the greater dryness of its exfoliation. This aridity is often so great as to render the complaint likely to be mistaken for Lepriasis, or some other of the *scaly* cutaneous desædations. From them it may be distinguished by this circumstance; viz. that *scaly* diseases are not preceded by moist or pustular eruption; there is no moisture except what arises from rupture of vessels, produced by scratching; the hair is not detached; neither are they infectious.

The Porrigo furfuracea is often accompanied by enlargement of the glands of the throat. The treatment is the same as the other varieties of Porrigo; viz. to repress vascular action in the inflammatory stage, and excite the secretions in the latter; which latter plan may be sooner put in force in this than in another variety of Porrigo. Dr. Good gives, as a last variety,

♂. *P. areata*. This disease, which he supposes bears some affinity to the Area of Celsus, the Trichosis area of this system, or the Porrigo decalvans of Bateman, is inserted because "the author had seen numerous instances of it, and often simultaneously in the same family, as though contagious." It is thus defined: "Clusters of very minute pustules seated on the scalp, in circular plots of baldness, with a brown or reddish furfuraceous surface."

3. Ecpyesis ecthyma: pustules large; distinct; distant; sparingly scattered; seated on a hard circular red base;

terminating in thick, hard, dark-coloured, scabs. There are three varieties; all invariably connected with constitutional disturbance.

α. *E. vulgare* (Plate XI. fig. 4.) is the slightest form of the disorder, and consists of a partial eruption of small hard pustules, on some part of the extremities, or on the neck and shoulders, which is completed in three or four days. In the course of a similar period, the pustules successively enlarge, and inflame highly at the base, while pus is formed at the apex; and in a day or two more they break, pour out their pus, and afterwards a thinner fluid, which speedily concretes into brown scabs. In a week more, the soreness and inflammation subside, and the scabs soon afterwards fall off, leaving no mark behind.

β. *E. infantile* occurs in weakly infants, during the period of lactation, when an insufficient nutriment is afforded them. The pustules are, in appearance, the same as those of the preceding variety, and go through similar stages of progress in the same time. But the disorder does not terminate here: fresh eruptions of phlyzacia continue to rise in succession, and to a much greater extent than in the *E. vulgare*, appearing not only over the extremities and trunk, but on the scalp, and even on the face. Hence the duration of the eruption is much greater than in the preceding variety, being sometimes protracted for several months. Yet the patients usually remain free from fever, and the pain and irritation seem to be inconsiderable, except when a few of the pustules become very large and hard, with a livid base, and ulcerate to some depth: in this case, also, a slight whitish depression is permanently left on the seat of the pustule.

γ. *E. luridum*, (fig. 5.) This differs from the preceding varieties in the dark red colour of the base of the pustules, and their hard and elevated condition. These pustules are moreover of a larger size. The eruptions, both in the growth of the pustules and in the subsequent ulceration, scabbing, and healing, is very slow in its progress. This variety is chiefly confined to advanced age. All the varieties of Ecchyma are cured by constitutional treatment. In the two first varieties, improvement in the diet of the patient and gentle purges and alteratives, will in a short time effect a cure. In the *E. luridum*, a more comprehensive system of practice must be embraced; and, viewing the disease as symptomatic of a broken-up constitution, our endeavours must be directed to the general state of health, and the removal of the cachectic diathesis. We have already sufficiently treated of this under *Dyspepsia*.

δ. *E. cachecticum*. Most authors describe another variety of Ecchyma. It is omitted by Dr. Good, probably because it may be doubted whether it be not a consequence of syphilitic or other morbid poison. We are inclined to think it is; but, according to Dr. Bateman, this is not invariably the case. It is thus described by that author. "The disorder usually commences with a febrile paroxysm, which is sometimes considerable. In the course of two or three days, numerous scattered pustules appear, with a hard inflamed base, sometimes first on the breast, but most commonly on the extremities: and these are multiplied day after day by a succession of similar pustules, which continue to rise and decline for the space of several weeks, until the skin is thickly studded with the eruption, under various phases. For, as the successive pustules go through their stages of inflammation, suppuration, scabbing, and desquamation, at similar periods after their rise, they are necessarily seen under all these conditions at the same time; the rising pustules exhibiting a bright red hue at the base, which changes to a purple or chocolate tinge, as the inflammation declines, and the little laminated scabs are formed upon their tops: when these fall off, a dark stain is left upon the site of the pustules. In different cases the eruption varies in its distribution: it is sometimes confined to the extremities, where it is either generally diffused, or clustered in irregular patches; but it frequently extends also over the

trunk, face, and scalp. The pustules which occupy the breast and abdomen are generally less prominent than those on the face and arms, contain less matter, and terminate rather in scales than in scabs. The febrile symptoms are diminished, but not removed, on the appearance of the eruption; for a constant erythema or hectic continues during the progress of the disease. It is accompanied by great languor, and by much depression both of the spirits and muscular strength; by headach and pains of the limbs, which are described as rheumatic; and by restlessness and impaired digestion, with irregularity of the bowels. There is commonly also some degree of ophthalmia, affecting both the conjunctiva and the tarsi; and the fauces are the seat of a slow inflammation, which is commonly accompanied by superficial ulcerations." The only effectual treatment seems to be to support the constitution by strict dietetic regulations, exercise, &c. and by gentle stimulants; as bark, sarsaparilla, and the mineral acids, &c. and so on till the disease is worn out. It sometimes lasts for several months. We present our readers, in fig. 1. and 2. Plate XII. with a representation of its most common forms.

4. *Erythema scabiei*, the itch: eruption of minute pimples, pustular, vesicular, and papular; intermixed or alternating; intolerable itching; terminating in scabs. Found chiefly between the fingers or in the flexures of the joints. (*Scabies*, *Cel. Sauv. Vog. Sag. Bateman. Pfora, Linn. Cull. Parr.*) There are five varieties of this disease.

a. *Sc. papularis*, the rank itch: eruption of miliary aggregate pimples; with a papular slightly-inflamed base, and vesicular apex; pustules scantily interspersed; tips, when abraded by scratching, covered with a minute, globular, brown scab.

This form of itch is liable to be confounded with Lichen or Prurigo. It may be distinguished from the former by the eruption itself; for the unbroken elevations in *Sc. papularis*, when carefully examined, are found to be vesicular, and not papular; they are often intermixed, in particular situations, with pustules; and, when they break, are succeeded by scabs; whereas in Lichen, the papule terminate spontaneously in scurfy exfoliations. In Scabies, the eruption is unconnected with any constitutional or internal disorder, and the itching is severe: but in Lichen, there is commonly some constitutional affection, and a tingling sensation, as well as itching. The highly-contagious nature of Scabies will, in many cases, have already manifested itself, and remove all doubt; for the Lichen is not thus communicable. In Prurigo, the papule, where no friction has been applied, retain the usual colour of the skin, are commonly flatter, or less acuminate, and present no moisture or scab, except when their tops have been forcibly abraded; they are not particularly numerous in the parts above mentioned; and they remain long distinctly papular, without showing any contagious property.

β. *Sc. vesicularis*, (*Sc. lymphatica*, *Bateman.*) Watery itch: eruptions of larger and more perfect vesicles, filled with a transparent fluid, with an uninfamed base; intermixed with pustules; at times coalescing and forming scabby blotches. The vesicles arise with intense itching, chiefly round the wrists, between the fingers, on the back of the hands, and on the feet and toes: they often occur also about the axillæ, the hams, the bend of the elbows, and fossa of the nates, where they are intermixed with pustules; but they do not frequently appear, like the papular species, over the breast and epigastrium, nor on the thighs and upper parts of the arms. In a day or two the vesicles break; and some of them heal under the little scab that concretes upon them. But others inflame, and become pustules, which discharge at length a yellow matter, and extend into small ulcerated blotches, over which a dark scab is ultimately formed. So that, during the progress of the eruption, all these appearances are intermixed with each other: the vesicles, and pustules,

the excoriated blotches discharging pus, the minute dry scabs, and the larger ones succeeding the ulceration, may be observed at the same time. This circumstance constitutes one of the points of diagnosis between this and other vesicular diseases. Of these, however, the Herpes and Eczema, especially the latter, are alone liable to be confounded with Scabies vesicularis. The Herpes differs from Scabies in the irregularity of its course and termination, and in the arrangement of its vesicles in clusters, which are commonly not numerous, and appear on those parts which Scabies is not very apt to attack. The most difficult diagnosis relates to some of the varieties of Eczema, which closely resemble this, and sometimes the former variety of Scabies; so that it is not so much from the mere appearances of the eruption, as from the consideration of the collateral circumstances, that a decision is to be obtained. The Eczema can often be traced to distinct sources of irritation affecting the skin, such as exposure to the solar rays, or to great heat, and to the application of acrid substances, such as lime, sugar, mercury, cantharides, &c. It sometimes becomes inflamed after the vesicles have discharged their lymph, but it does not produce the large phlyctenous pustules; and, although the itching is sometimes intense, yet there is commonly a tingling and smarting pain with Eczema, that does not belong to Scabies: nor is it ever, like the latter, communicated by contagion.

γ. *Sc. purulenta*, the pocky itch, (see fig. 3. Plate XII.) This eruption consists of distinct prominent yellow pustules, which have a moderate inflammation round their bases, and which mature and break in two or three days, and then ulcerate, with increasing pain and inflammation. These pustules commonly appear first, and attain the largest size, on the hands and feet, especially about the knuckles and roots of the toes, between the fingers, and particularly between the forefinger and thumb, and round the wrists. In these situations, the pustules often exceed two lines in diameter, and assume a prominent globular form. If the disease continue a few weeks, the pustules begin to appear on the other parts of the body which Scabies usually attacks, especially about the axillæ, on the back and shoulders, and on the arms and thighs near the joints of the knee and elbow, in the fossa of the nates, and sometimes, though of a smaller size, even about the epigastrium. In several of these situations, where the pustules are largest and numerous, they coalesce, and form irregular blotches, which ulcerate to some extent, with hardness and elevation of the surface; but at length hard and dry scabs are formed, which adhere tenaciously for a considerable time.

The majority of the cases of Scabies purulenta occur between the age of seven years and the period of puberty. It cannot be easily mistaken for Impetigo, when it occurs in patches, in consequence of the large size, the greater prominence, and comparatively small number, of its pustules; not to mention the absence of the intense itching, and of contagion, in the former. From the Porigo favosa affecting the extremities, it will be distinguished chiefly by its situations about the fingers, axillæ, fossa nati, and flexures of the joints, and by the total absence of the eruption from the face, ears, and scalp; by the nature of the discharge; and by the thin, hard, and more-permanent, scab, which succeeds, instead of the soft, elevated, semi-transparent, scab, formed by the viscid humour of the favi. The only other disease, with which the Scabies purulenta has any affinity, is the Ecthyma: but the hard, elevated, vivid red or livid base, which surrounds the pustules of Ecthyma, their slow progress both towards maturity and in the course of suppuration, the deep ulceration, with a hard raised border, and the rounded imbedded scab, which succeeds, as well as the distinct and separate distribution of them, will afford the means of discrimination; to which the incessant itching and the contagious property of Scabies, may be added.

δ. *Sc. complicata*; (*Sc. cachectica*, *Bateman*.) Complicated itch: eruption complicated of pustular, vesicular, and papular, pimples co-existing; spreading widely over the body; occasionally invading the face; sometimes confluent and blotchy.

ε. *Sc. exotica*, mangy itch; (see fig. 4.) eruption chiefly of numerous rank pustules, with a hard inflamed base, rendering the skin rough and brownish: itching extreme: abrasion unlimited from excessive scratching. This is produced by handling mangy animals. Several of the varieties found also, occasionally, as sequels upon severe small-pox, or other causes of constitutional debility.

It was formerly supposed that the presence of a minute insect under the skin was the cause of Scabies; it is now generally understood, that, though this insect is sometimes seen, it is so often wanting that it can merely be adventitious. We have given a description and figure of it under the article *ACARUS*, vol. i. p. 51.

Sulphur is a specific for the cure of itch. There is good reason to believe, however, that it is not the only specific. Be this as it may, it is the most effectual and innocent substance we know of. It is usually given in milk internally, and used externally as an ointment. The best mode of applying the sulphur appears to be, to make an ointment of three parts of lard to one of sulphur, which may be scented by any thing that is most agreeable. This is to be most diligently rubbed in before the fire at night; and the patient, having a linen dress prepared which must fit close to the skin, is to put it on, get into bed, and remain there till the following night, when the friction is to be resumed. Another night being spent in bed, the patient is said to arise, in most cases, perfectly free from the Scabies. If however the eruption is not much improved in its appearance, the same process must be repeated. The above plan is given on the authority of one of the first practitioners in this city.

In the severer and more complicated forms of itch, it may sometimes be necessary to premise constitutional treatment, and sedative applications to the sore surface, before the administration of sulphur is begun upon; and, even then, this precaution should be taken some time prior to its external use.

Genus VII. *Malis*, [Gr. from the Heb. מלש, to lay eggs.] Cutaneous Vermination; the cuticle, or skin, infested with animalcules. There are five species, and numerous varieties.

1. *Malis pediculi*, lousiness: cuticle infested with lice, depositing their nits or eggs at the roots of the hair: troublesome itching. Two varieties.

α. *P. humani*: infested with the common louse; chiefly inhabiting the head of uncleanly children, where it produces a greasy scurf, or other filth; and sometimes excruciation and porrigo: occasionally migrates over the body.

β. *P. pubis*. "Infested with the *morpio*, or crab-louse; found chiefly on the groins and eye-brows of uncleanly men: itching extreme, without ulceration." Destroyed by mercurial ointments.

2. *Malis pulicis*, flea-bites: cuticle infested with fleas; often penetrating the cutis with their bristly proboscis, and exciting pungent pain; eggs deposited on or under the cuticle. Two varieties.

α. *P. irritantis*; infested with the common flea, with a proboscis shorter than the body: eggs deposited on the roots of the hair and on flannel.

β. *P. penetrantis*, chiggers: infested with the *chigoe*, or West-Indian flea, with a proboscis as long as the body: often penetrating deeply into the skin, and lodging its eggs under the cuticle, particularly of the feet: producing malignant, occasionally fatal, ulcers. The *chigoe* requires careful extraction.

3. *Malis acari*: cuticle infested with the *tick*; itching harassing, often with smarting pain. Three varieties.

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α. *A. domestici*. "Observed on the head in considerable numbers." *Young*.

β. *A. scabiei*. Infested with the itch-tick: burrowing under the cuticle, in or near the pustules or vesicles of the scabies, in those affected.

γ. *A. autumnalis*, harvest-bug-bite: infested with the harvest-bug; less in size than the common mite; inflicting its bite in the autumn, and firmly adhering to the skin: itching intolerable, succeeded by glossy wheals.

4. *Malis filariae*: skin infested with the guinea-worm; winding and burrowing under the cuticle, for the most part, of the naked feet of West-Indian slaves; severe itching; often succeeded by inflammation and fever. See *FILARIA*, vol. vii.

5. *Malis gordii*: skin infested with the hair-worm; chiefly insinuating itself under the cuticle of the back or limbs of infants; producing pricking pains, emaciation, at times convulsions. See *GORDIUS*, vol. viii.

"Though described by writers of great credit, the nature of the disease is uncertain. By some authors the contained fibrils seem to be regarded as a preternatural production of hairs; but the greater number, and among the rest Ambrose Paré, decidedly ascribe to them a living principle. It appears therefore to be a species of the Gordius, or hair-worm; some of which infest other animals in a like manner; and especially the *Cyprinus alburnus*, or bleak, which, at the time, appears to be in great agony." *Good's Nosology*, p. 496.

Genus VIII. *Echyma*, [from ἐκφύω, to draw out; in contradistinction both to *Phyma*, an inflammatory tumour, and *Emphyma*, a tumour without inflammation, originating below the integuments.] Cutaneous excrescence; superficial, permanent, indolent, extuberance; mostly circumscribed. (*Phymatosis*, *Young*.) Four species.

1. *Echyma caruncula*, caruncle: soft, fleshy, often pendulous excrescence of the common integument. Found over the surface generally. Found also, occasionally, as a sequel of lues, about the arms and sexual organs. It derives, in many instances, a particular name from its shape, or position; as *ficus*, when fig or raisin shaped; *encanthis*, when seated on the canthus or angle of the eye.

2. *Echyma verruca*, wart: firm, harsh, arid, insensible extuberance of the common integuments. Found chiefly on the hands. Three varieties.

α. *V. simplex*; simple and distinct: sessile or pedicel.

β. *V. lobosa*; full of lobes and fissures.

γ. *V. confluentis*; in coalescing clusters.

Warts may, according as they are large or small, be destroyed by caustic, ligature, or the knife. When the latter is used, caustic must be applied for some time after, to destroy the roots of the morbid growth. Warts, as Dr. Good tells us, are destroyed in Sweden by the *Gryllus verrucivorus*, or wart-eating grasshopper, which has green wings spotted with brown. The common people catch it for this purpose; and it is said to operate by biting off the excrescence, and discharging a corrosive liquor on the wound.

3. *Echyma clavus*, corn: roundish, horny, cutaneous, extuberance; with a central nucleus sensible at its base. Found chiefly on the feet and toes from the pressure of ill-formed shoes.

The most efficient way to destroy a corn is to remove the exciting cause; viz. pressure. This, however, is no easy matter; because all shoes at present made are quite of an opposite form to the natural figure of the human foot; and, if large shoes be worn for a time, they only aggravate the distress that ensues when a tight one is put on. Frequent bathing with warm water affords great relief to the uneasy sensations of a corn; and, when well soaked, the top of the corn, which, from its projection, of course renders the pressure on it greater, may be cut

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off. Moreover, when sufficiently softened by warm-bathing, corns may be removed by gently picking them round their circumference with a needle till they can be pulled out without giving pain. Sometimes a little diachylon plaster laid on a corn keeps it soft, and promotes its dissolution. Cutting, as commonly practised, does harm. These growths are sometimes connected with the periosteum, and hence arise those deep-seated pains in the bones which often attend them.

4. Ecphyma callus: callous extuberant thickening of the cuticle; insensible to the touch. Found chiefly on the palms of the hands and soles of the feet as the consequence of hard labour.

Genus IX. *Trichosis*, [from *τριχίς*, the hair.] Morbid organization or deficiency of hair. Eight species.

1. *Trichosis fetosa*: hairs of the body thick, rigid, and bristly.—Thrown off and renewed every autumn: six lines long, two or three thick, erect: five sons affected as the father; *Phil. Transf.* vol. v. No. 424. See also *Journ. de Med.* Mar. 1756. *Paullini*, Cent. I. Obs. 31.

2. *Trichosis plica*, matted or plaited-hair: hairs vascularly thickened; inextricably harled, and matted, by the secretion of a glutinous fluid from their roots; contagious. Usually, but not always, appearing in, or confined to, the hairs of the scalp.—In the beard, *Eph. Nat. Cur.* Dec. II. ann. viii. 94.—Hairs of the cuticle, *Id.* Obs. 71.—Of the pudendum, *Id.* Dec. I. ann. iii. 220. *Paullini*, Cent. I. Obs. 77.

Sometimes preceded by hemicrania, or other constitutional affection; and occasionally a sequel of psoriasis. In Poland it appears to be endemic; but it is not peculiar to that country. Notwithstanding the popular error by which this practice is opposed, the best way of getting rid of this dirty disease, is to shave off the hair, and wash the head regularly and repeatedly. The same means may be used for the cure of the local ulceration which scratching is apt to induce in this disease, as those recommended for Porribo.

3. *Trichosis hirsuties*: growth of hairs in extraneous parts, or superfluous growth in parts common. The most frequent variety is that of bearded women.

4. *Trichosis distrix*: hairs of the scalp weak, slender, and splitting at their extremities.

5. *Trichosis poliosis*: hairs prematurely grey, or hoary.

6. *Trichosis athrix*, baldness: decay and fall of the hair. Three varieties.

α. *A. simplex*: hairs of the scalp of a natural hue; but gradually dying at the bulbs, or loosened by relaxation of the integument.

β. *A. calvities*; hair gray or hoary; baldness chiefly on the crown of the head and confined to it. Mostly common to advanced age.

γ. *A. barbæ*; decay and fall of the beard.

7. *Trichosis area*; (*Porribo decalvans*, *Bateman*.) Patches of baldness without decay or change of colour in the surrounding hair; exposed plots of the scalp glabrous, white, and shining; sometimes spreading and coalescing, rendering the baldness extensive. The hair will often be reproduced under the regular and continued use of stimulating embrocations. Dr. Good gives two varieties, taken from Celsus.

α. *Diffuens*; bald plots of an indeterminate figure; existing in the beard as well as in the scalp: obstinate of cure. Common to all ages.

β. *Serpens*; baldness commencing at the occiput, and winding in a line, not exceeding two fingers breadth, to each ear, sometimes to the forehead: often terminating spontaneously. Chiefly limited to children.

8. *Trichosis decolor*: hair of the head of a preternatural hue.

α. *Cærulea*; of a blue colour. *Ephem. Nat. Cur.* Dec. II. ann. iv. App. p. 203. *An. vi.* obs. 226.

β. *Denigrata*; changed from another hue to a black. *Paullini*, Cent. III. Obs. 39: the sequel of a fever. *Bo-*

relli, Cent. III. Obs. 2; from exsiccation.—*Schenk*, *Observ. Med.* i. 4; from terror.—*Schurig*, *Spermatol.* from white to black; the colour of the beard changed also.

γ. *Viridis*. Of a green colour. *Paullini*, Cent. I. Obs. 93. *Bartholin*. *Hist. Anat.*

δ. *Variegata*. Spotted, like the hair of the leopard. *Paullini*, Cent. IV. obs. 67. *Ephem. Nat. Cur.* Dec. III. ann. iii. Obs. 184.

The hair occasionally grows, and has sometimes changed its hue, after death. *Eph. Nat. Cur.* passim.

Genus X. *Epichrosis*, [i. e. a spotted or coloured surface.] Simple discoloration of the surface. (*Spilosis*, *Young*.) Six species.

1. *Epichrosis leucasmus*, (*Vitiligo*, *Bateman*.) White, glabrous, shining, permanent spots, preceded by white transitory elevations or tubercles of the same size; often coalescing, and creeping in a serpentine direction; the superincumbent hairs falling off, and never re-sprouting. Common to the surface; but chiefly found about the face, neck, and ears.

There is no considerable constitutional disorder combined with this affection; but it has proved exceedingly unmanageable under the use of both internal and external medicines. The mineral acids internally, and the application of diluted caustic and spirituous substances externally, have been chiefly employed, but with little obvious effect.

2. *Epichrosis spilus*, mole: brown permanent circular patch; solitary; sometimes slightly elevated, and crested with a tuft of hair.

3. *Epichrosis lenticula*, freckles: cuticle stigmatized with yellowish-brown dots, resembling minute lentil-seeds; gregarious; often transitory. Found chiefly on the face, neck, and hands, of persons possessing delicate constitutions, and red hair. When of a larger size, the Greeks called them *phaciæ* (*φάκισ*). *Cels.* VI. 5.

4. *Epichrosis ephelis*, sun-burn: cuticle tawny by exposure to the sun; often spotted with dark freckles, confluent or corymbose; disappearing in the winter.

5. *Epichrosis aurigo*: cuticle saffron-coloured, without apparent affection of the liver or its appendages; colour diffused over the entire surface; transient: chiefly in new-born infants.

6. *Epichrosis pœcilia*: cuticle marbled generally, with alternate plots or patches of black and white. *Blumenbach* gives examples from a Tartar tribe, whose skin was naturally spotted like the leopard's. *De Generis Humani varietate nativa*.

Chiefly found among Negroes, from an irregular secretion or distribution of the pigment which gives the black hue to their rete mucosum. In Albinos, whether among blacks or whites, the secretion appears to be entirely suppressed from constitutional debility or other defect. The subjects of this disease are commonly called *spotted* or *pye-balled negroes*.

The different hues of black, copper-coloured, olive, and red, by which different nations are distinguished in different parts of the world, cannot be regarded as diseases. They are as natural to them as a fair complexion to an European, and only constitute distinct features in the different varieties of the human race. They are, however, regarded as diseases by *Plenck*, who has entered them in his class *MACULÆ*, under the generic terms of *rubedo cutis*, *nigredo cutis*, and *albor cutis*; by the last intending, not the inhabitants of Europe or Asia Minor, but Albinos, or those included under the genus *Alphosis* of the present system.

Some of these natural, and many morbid, discolourations have often been found relieved by cosmetics; as that of *Homberg*, which is a dilute solution of oxy muriate of mercury, with a mixture of ox-gall. *Hartmann's* cosmetic was a simple distillation of arum-root in water. If the hands be deeply discoloured, they may be whitened by being exposed to the fumes of sulphur. In the American

rican states, a black has occasionally been known to have the whole of the colouring pigment absorbed and carried off during a fever, and to rise from his bed transformed into a white man. See the same subject treated by M. Bosc, *Pr. de Mutato per Morbum colore corporis humani*, Lips. 1785. Büchner relates the case of a man who, on the contrary, on recovery from a severe fever had his face tinged with a black hue; probably from a morbid secretion and deposit of a black pigment along with the rete mucosum of the face. Plenck asserts that he once saw a man with a green face, the right side of the body black, and the left yellow, produced by previous disease.

CLASS VII. TYCHICA, [i. e. accidental; from *τυχη*, a fortuitous event, a case that rarely happens.]

FORTUITOUS LESIONS OR DEFORMITIES.

The whole of this Class is contained under the articles **MONSTER** and **SURGERY**; fortuitous lesions under the latter, and deformities under the former. We have only therefore, in this place, in order to render our Classification complete, to give Dr. Good's enumeration of the orders, genera, and species.

Order I. APALOTICA, [from *απαλοτης*, softness.] Disorders affecting the Soft Parts. The organization of the soft parts injured or interrupted by violence or by over-exertion. This order contains five genera.

Genus I. Trefis, [i. e. a wound, or perforation.] Forcible solution of continuity in a soft part, commencing externally. There are four species.

1. *Trefis vulnus*, a wound. Of this there are four varieties; as the wound may be either a simple cut, or lacerated, or deep, or contused, as a gunshot or splintery wound.

2. *Trefis punctura*, a puncture. Three varieties.

α. *P. simplex*; simple disunion by a sharp piercing instrument.

β. *P. incuspidata*; the point of the instrument broken off, and remaining in the course of the puncture.

γ. *P. venenata*; the pointed instrument loaded with an acrid or poisonous material; as the arrows of barbarians with the lama or ticusas; the fang of the tarantula and several other spiders; the sting of the wasp, hornet; or scorpion.

3. *Trefis excoaratio*: the substance of a soft part abraded at its surface. Two varieties.

α. *E. simplex*; confined to the skin; chiefly produced by friction.

β. *E. complicata*; deeper than the integument, with contusion, or loss of subjacent substance.

4. *Trefis caufis*, a burn.

Genus II. Thlasma, [from *θλαω*, to bruise.] Forcible derangement in the structure of a soft part, without disunion of the external integument. Three species.

1. *Thlasma concussio*, concussion, without extravasation of blood.

2. *Thlasma confusio*; external compression; with extravasation of blood, and discolouration of surface.

3. *Thlasma stremma*, a strain, or wrench.

Genus III. Rhagma, [from *ρεγνυμι*, to break.] Laceration. Four species.

1. *Rhagma ligamentare*; laceration of a ligament.

2. *Rhagma musculare*; of a muscle or its tendon.

3. *Rhagma vasculare*; of a blood-vessel.

4. *Rhagma viscerale*; of a viscus.

Genus IV. Hernia, [from *εγνος*, a branch.] Rupture. Seven species.

1. *Hernia inguinalis*, rupture from the groin. Four varieties. 2. *Intestinalis*; 3. *Omentalis*; 4. *Duplicata*; and 5. *Congenita*.

2. *Hernia femoralis*, femoral or crural rupture. This

admits of an intestinal, omental, or duplicate, variety, as in the preceding species.

3. *Hernia umbilicalis*, umbilical rupture. Admits of three varieties, as the protrusion may be of the stomach, liver, or spleen.

4. *Hernia ventralis*, ventral rupture. Varied as in the preceding species, and the varieties distinguished by the same names.

5. *Hernia ischiatica*, hernia of the foramen ovale.

6. *Hernia vesicalis*, rupture of the urinary bladder. Two varieties.

α. *Simplex*; the naked bladder alone protruding.

β. *Complicata*; accompanied with a portion of intestine or omentum.

7. *Hernia diaphragmatica*, protrusion of a portion of intestine into the chest through an aperture in the diaphragm.

Genus V. Entesis, [from *ενθημι*, to put in.] Irritation or obstruction of a natural passage by the introduction of an improper material. Five species.

1. *Entesis œsophagea*: improper material obtruded into the œsophagus.

The more common substances are hairs, small feathers, fish-bones, fruit-stones, and various pieces of money. These have often remained fixed for a very long time; and have occasionally been found to migrate to very remote parts. A needle has continued in the œsophagus for nine years before it was loosened and discharged; *Kehring*, *Specil. Anat.* obs. 42. A fish-bone, after long obstruction, worked its way through the substance of the œsophagus, and was at length thrown out at the cutis; *Arculari, Practica*, cap. 57. The point of a sword, for thirty years buried in the eye, was at last ejected by the palate; *Hoechstetter*, *Dec. VI.* cas. 9. The œsophagus has sometimes been large enough to allow a half-crown to pass without injury, which has been evacuated by the rectum. A half-crown piece of this kind is in Dr. Hunter's museum. See also Baillie's *Morb. Anat.* for several other curious examples.

2. *Entesis ventricularis*; improper material swallowed into the stomach. Two varieties.

α. *Mechanica*; hard and indigestible substances; as a knife, a nail, pieces of money, a multitude of fruit-stones.

β. *Venenata*; poisonous substances, vegetable, mineral, or chemical. See **POISON**.

3. *Entesis intestinalis*; improper material lodged in the intestinal canal. Occasionally discharged by an abscess at a distance; sometimes, when pointed and slender, as pins or needles, migrating to a remote organ. See *Phil. Trans.* 1768-9. *Lond. Med. Journ.* iv. 77. vi. 36, 401. and xlviii. 389.

4. *Entesis trachealis*: improper material lapsed or inhaled into the trachea. Two varieties.

α. *Mechanica*; impeding the passage.

β. *Mephitica*; noxious to the respiration.

5. *Entesis urethralis*: foreign substance broken in the urethra, or dropped from it into the bladder. Chiefly fragments of bougies, improperly manufactured, or continued to be employed by the patient after being worn out.

Order II. STEREOTICA, [from *στερεος*, hard, firm.] Disorders affecting the Hard Parts. The continuity or connexion of the hard parts impaired or interrupted by violence or over-exertion. This order has four genera.

Genus I. Catagma, [i. e. a fracture.] Forcible division of a bone into two or more parts. (*Clasis*, *Parr.*) Two species.

1. *Catagma fractura*, a broken bone. The varieties are four, as the fracture may be simple, splintery, compound, or complicated with other injury.

2. *Catagma fissura*: bone cracked; the divided edges still in contact. Chiefly affecting the cranium, though the

the long bones are occasionally subject to it, and especially the ribs. Three varieties.

α. *F. subjacens*; fissure immediately below the external injury.

β. *F. contra-jacens*, counter-fissure; fissure and several symptoms on the opposite side of the skull to the external injury.

γ. *F. complicata*; combined with a counter-stroke producing concussion or extravasation. See a singular case of Le Dran's, in which the outer table of the head was fissured; the inner had a small bony scale thrown off from it, and concussion with extravasation took place on the opposite side of the skull. *Obs.* xvii.

Genus II. *Campsis*, [from *καμπτω*, to bend.] A bone or cartilage forcibly bent from its proper shape without breaking.

Campsis depressio, a single species. The bone or cartilage flattened or bent inwards. Found chiefly in young subjects; and principally on the cranium and ensiform cartilage of the chest; the bone often recovering its proper figure with the gradual growth of the frame.

Genus III. *Exarthrema*, [from *εξαρθρωω*, to put out of joint.] Dislocation; extrusion of a bone from its seat of articulation. Three species.

1. *Exarthrema luxatio*, a luxation: the bone, easily and extensively moveable, forced completely from its articulating cavity.

2. *Exarthrema subluxatio*, subluxation: the bone forced partially from its cavity, and resting on the edge of the socket.

3. *Exarthrema loxarthrus*, twisted, or oblique joint: the bone, slightly and narrowly moveable, forcibly loosened in its articulation, and distorted in its relative position. Chiefly occurring in the bones of the chest, with subsequent gibbosity, especially in young persons; and in the bones of the carpus and tarsus, producing crooked wrists and splay-feet.

Genus IV. *Diastrasis*, [from *διαστημι*, to separate.] Separation of bones. Three species.

1. *Diastrasis epiphyseica*: separation of a bone from its epiphysis. Confined to the stages of infancy and feeble adolescence; for the epiphyses of bones in a healthy constitution become gradually apophyses, or constituent parts of the bones themselves. Often mistaken by the unskillful for a luxation; and aggravated by vain and painful attempts to effect a reduction.

2. *Diastrasis cartilaginea*: separation of bones connected by an intervening cartilage. Exemplified most commonly in the separation of the symphysis pubis in cases of preternatural labour; though other instances are not uncommon.

3. *Diastrasis sutoria*: separation of connecting sutures. A separation of the sutures of the skull is usually fatal. Mr. B. Bell mentions one instance of an injury of this kind that terminated favourably. *Surg.* vol. vi.

Order III. MORPHICA, [from *μορφη*, form.] Monstrosities of Birth. Six genera.

Genus I. *Metrolcelis*, [from *μητηρ*, mother, and *κηλις*, a spot.] Mother's marks. Congenital discolourations on the surface. (*Nævus*, *Sauv.* &c.) Five species.

1. *Metrolcelis spilofa*: simple, superficial, circumscribed stain; for the most part yellow, brown, or red. Three varieties.

α. *Circularis*; with a circular or orbicular outline.

β. *Foliacea*; leaf-shaped.

γ. *Arachnoides*; with slender claw-shaped or spider-legged ramifications.

2. *Metrolcelis fructiformis*; dark-coloured, in the form of fruit. The fruits chiefly represented are the cherry, currant, and grape; with a smooth surface; and the mul-

berry, raspberry, and strawberry, with a papulous surface. Two varieties.

α. *Pediculata*; possessing a footstalk.

β. *Sessilis*; fixed to the surface by a broad base.

3. *Metrolcelis turgefcens*: large, loose, sanguine, irregular-shaped tumour; sensibly composed of a congeries of bloated and distorted vessels. (*Nævus cavernosus*, *Plenck.*)

4. *Metrolcelis diffusa*: discoloration spreading indeterminate over a limb, or a large part of the body. Riedlin describes a case of universal discoloration from a fright of the mother, making an approach to *Epichrosis pœcilia*.

5. *Metrolcelis cana*: hair of the scalp hoary at birth.

Genus II. *Olophonia*, [from *ολλυμι*, I lose, and *φωνη*, voice.] Congenital misconstruction of the vocal organs. Four species.

1. *Olophonia narium*; misconstruction of the nostrils. Two varieties.

α. *Obstruens*; impeding the utterance, from imperforation or other cause.

β. *Defectiva*; the organization incomplete.

2. *Olophonia linguæ*: misconstruction of the tongue or its appendages. Three varieties.

α. *L. adhesiva*; adhesion of the tongue to the surrounding parts.

β. *L. frænata*; tongue tied beneath by contraction of the frænum, or its extending too near the tip.

γ. *L. deglutatoria*, frænum loose or absent, and the tip of the tongue doubling back upon the fauces.

3. *Olophonia palati*: misconstruction of the palate.

4. *Olophonia labii*: misconstruction of the lips. Three varieties.

α. *L. lobata*, hare-lip; lobed or divided in the middle; edges separated and convex.

β. *L. bilobata*; lip bilobed, or doubly divided.

γ. *L. prolapsa*; one or both lips strikingly broad and projecting.

Genus III. *Paræsthesis*, [i. e. imperfect sense.] Congenital misconstruction of the external organs of sense. Here we have only three species noted.

1. *Paræsthesis auditus*: misformed organ of hearing. Three varieties.

α. *A. flacca*, flap-ear: lobe of the ear broad, loose, and pendent. Said to be a common deformity among the natives of Siam. The source of the surname of *Flaccus* in ancient Rome.—A beetle-headed flap-ear'd knave. *Shakespeare.*

β. *A. obstruens*, imperforate ear.

γ. *A. defectiva*, congenital deafness.

2. *Paræsthesis olfactus*: misformed organ of smell. Two varieties.

α. *O. obstruens*; impeding the entrance of scents from imperforation or other cause.

β. *O. defectiva*; the organization incomplete.

3. *Paræsthesis visus*: misformed organ of sight. Two varieties.

α. *V. unoculata*; possessing only one eye.

β. *V. pupillaris*; pupil incomplete in its power of vision.

Genus IV. *Perosplanchnia*, [from *πηρος*, defective, and *σπλαγχνον*, viscus.] Congenital misconstruction of the viscera. Six species.

1. *Perosplanchnia cranii*: misconstruction of the head. Three varieties.

α. *C. capitosa*, jolt-head: head enormously bulky; contents solid.

β. *C. hydropica*; head enormously bulky, from dropsical affection; hydrocephalus.

γ. *C. cerebialis*; brain incomplete in quantity or organization. Some have been born without a cranium, and a fleshy

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a fleshy mass instead of brain. *Vallisneri*, 330. *Soemmering*.—Without brain or medulla oblongata; *Dufour*. *Journ. de Med.* xxxv.—Acephalous; lived eleven hours. *Act. Med. Berol.* Dec. I. viii.—Lived five days; another case six days. *Plouquet*.

2. *Perosplanchnia cordis*: the heart misconstructed or misplaced. Four varieties.

α. *C. perforata*; the two ventricles communicating.

β. *C. translata*; heart transposed to the right side.

γ. *C. expers*; heart totally wanting.—See *Hewson* on the *Lymph. Syst.* Part. II. p. 15. There were other defects besides the total absence of the heart. "The circulation had been carried on merely by an artery and a vein, whose coats therefore probably were muscular."

δ. *C. multiplicata*; heart duplicate, or more than duplicate.—Double; see d'Abouville, *Amer. Phil. Transf.* vol. i.—In a partridge; *Tode*, *Annalen* v.—In a dog; *Paullini*, p. 43.—In a hen; *Eph. Nat. Cur.* Cent. VIII. Obs. 8.—Triple: found several times in geese. *Eph. Nat. Cur.* passim.

3. *Perosplanchnia alvei*: the intestinal canal or its involucre misconstructed or perverted. Three varieties.

α. *A. perforans*; the intestines perforating the involucre. See *Calder Ed. Med. Eff.* I. art. xiv. Intestines appeared externally, having fallen through a perforation above the navel: child in health when born, but died four days afterwards.

β. *A. defectiva*; some of the parts wanting. See *Dinmore*, *Lond. Med. Journ.* XI. 339. *Parietes deficient.* *Act. Soc. Med. Hafn.*

γ. *A. obstruens*; obstruction in the alvine passage, from imperforation or other cause.

4. *Perosplanchnia hepatis*: misconstruction of the liver.

5. *Perosplanchnia vesicæ*: misconstruction of the bladder or urinary channel.—Bladder deficient. *Duncan*, *Edin. Med. Journ.* iv. 403. Urethra imperfect and imperforate: urine discharged from a papilla near the navel: child otherwise in health: age not mentioned. *Mowath*, *Edin. Med. Eff.* vol. iii. art. xiv.

6. *Perosplanchnia genituræ*: misconstruction of the genital organs, or their appendages. Three varieties.

α. *G. superflua*; organization superfluous or anomalously multiplied. Double uterus and vagina. *Phil. Transf.* 1774, p. 472.—Double penis. *Schenck. Plouquet*.—Penis of enormous size. *Memoires concernant les Arts.* 1672, p. 27. *Wolff*, *Leßt. Memorab.* I. 434.

β. *G. defectiva*; organization incomplete. One or both testicles defective; generally from emasculation. Prepuce or clitoris imperfect or wanting. *Vesiculæ feminales* confusedly united, and wanting their excretory ducts. The necessary result of this defect in an adult must be dyspermia, and consequently agnesia. See *Baillie*, *Morb. Anat. Fasc.* viii. Pl. I. fig. 2.

γ. *G. obstruens*; obstruction in the male or female passage from imperforation or other cause.

Genus V. *Peromelia*, [from *προς*, defective, and *μελος*, a member.] Congenital misconstruction or mutilation of the limbs. Four species.

1. *Peromelia decurtata*: limbs curtailed of their proper length; as the arms or legs preternaturally abridged.

2. *Peromelia truncata*: limbs or parts of a limb totally wanting. Six varieties.

α. *Capitis*; head totally wanting.

β. *Brachii*; γ. *Cruris*; destitute of one or both arms or legs.

δ. *Manus*; ε. *Pedis*; destitute of one or both hands or feet.

ζ. *Complicata*; destitute of various limbs. *Miss Bevan*, thus preternaturally mutilated, exhibited herself a few years ago in this metropolis: a mere head and trunk, with the rudiments only of shoulders and lower limbs. She was about thirty years of age, of agreeable face, form of body, and manners; well educated; worked

with her needle by means of the tongue; and painted miniature portraits with great delicacy and close resemblance, by holding her pencil between the right cheek and shoulder; by the same contrivance she wrote a neat running hand.

3. *Peromelia contorta*: limbs incurvated or confused in their organization. Five varieties.

α. *Colli*; wry-necked.

β. *Gibbosa*; hump-backed or hump-shouldered.

γ. *Valga*; bow-legged or bandy-legged.

δ. *Plauta*; splay-footed or splay-handed; having the foot or hand turned inwards. Hence the name of *Plautus*, the Roman dramatic poet.

ε. *Loriformis*; club-footed or club-handed.

4. *Peromelia superflua*: limbs or parts of a limb superfluous. Two varieties.

α. *Digitorum*; supernumerary fingers or toes. This peculiarity is often propagated to succeeding generations. See the account of the six-fingered family mentioned by *Maupertuis*; and *Mr. Carlisle's* account of the family of the *Colburns* of America, one of whom was lately exhibited in this metropolis as a boy of extraordinary powers in arithmetical calculations. *Phil. Transf.* 1814, p. 94. and our article *LONDON*, vol. xiii. p. 314. Some of the families of the ancient Philistines appear to have possessed the same peculiarity; (2 Sam. xxi. 20.) As also several among the Romans; for which see *Pliny*, lib. xi. cap. 43.

β. *Crurum*; lower extremities superfluous.

Genus VI. *Polyperia*. [from *πολυς*, many, and *προς*, defective.] Congenital misconstruction of various parts or organs. Three species.

1. *Polyperia promiscua*: the parts or organs of one cavity confused with those of another. Two varieties.

α. *Translata*; transposition of organs from their proper seat; as the abdominal viscera in the thorax. *Macaulay*, *Med. Obs.* i. 25.—Total transposition of the abdominal and thoracic viscera; *Phil. Transf.* 1674.

β. *Vascularis*; inverted distribution of the arteries. *Baillie*, Pl. 21.

2. *Polyperia superflua*: superfluous organization general, or extending to various organs. Four varieties.

α. *Biceps*; head double.

β. *Bicorpor*; body double.

γ. *Convulsens*; one individual enclosed within another. *G. W. Young*, *Medico-chir. Transf.* i. 234.

A similar monstrosity in the vegetable world is to be found in the *Transactions of the Stockholm Academy*, vol. i. p. 414, under the title of *Pomerantz med et innestult foster*. It consists of one orange growing within another. The fruit was exhibited to the Society by Count *Tessin*.

δ. *Hermaphroditus*; genital organs of both sexes in one individual. See *ANATOMY*, vol. i. p. 623. and Plate VI.

3. *Polyperia defectiva*: defective organization general, or extending to various organs. Two varieties.

α. *Nanus*, dwarf; the organization of the whole form distinctly developed, but inordinately diminutive.

β. *Mola*, mole; general organization imperfectly and indistinctly developed. A twin-mole without a heart, is mentioned by *Le Cat* in *Phil. Transf.* 167. 1.

To the general principles of therapeutics laid down at pages 96 & seq. and to the practical details of the same science, so largely dwelt upon under every species of our numerous catalogue of diseases, we have nothing further to add. Dismissing, therefore, the subject of the action of material agents on the human frame, we come to the consideration of the mode in which these agents are to be prepared, combined, and modified, to ensure their most efficient operation. This embraces that branch of the healing art called *Pharmacy* or more properly *Pharmacopology*. *Materia Medica* is the term which is now used in the *Pharmacopœia* to designate the raw materials. In a more extended series, it might be made to comprehend all

the substances, however prepared, ready for the use of the physician. The *Materia Medica* consists of three kinds of substances; those derived from animals, those derived from vegetables, and those taken from the mineral kingdom. These divisions, as far as regards the substances themselves, when subjected to the operation of chemistry, run into each other. From the animal kingdom, however, very few medicines are derived: the most important that occurs to us is the *Lytta*, or blistering-fly. The vegetable kingdom furnishes a vast number; and from every part of plants, trees, and shrubs, peculiar substances are occasionally derivable. Our pharmacopœias abound with many vegetable substances which are never used by practitioners in general. This superabundance of materials was owing, in the first instance, to an absurd notion, that every individual plant in existence was endowed with curative powers over some particular malady; and, in the second, to that want of discrimination which leads men to mistake partial coincidence for invariable or general law. The chief thing which the pharmacist has to attend to in the preparation of vegetables, is their preservation. The manner of *drying*, therefore, whether in regard to its suddenness or tardiness, the time of gathering, the mixing with other, herbs, &c. are all points to be intimately attended to: for some plants, as the *colchicum* and squill especially, lose their effects entirely if not pulled at a particular season, or if dried in an improper manner.

For the convenience of exhibition, the virtues of plants are extracted (for immediate use) by *infusion*; i. e. the power of cold or boiling water on a plant for a certain length of time; and by *decoction*, or the actual boiling of the substance. More permanently, the virtues of plants are preserved in *tinctures*, i. e. fluids containing a large proportion of spirits of wine; and by *extracts*, procured by means of solution and evaporation. By the last process the *essential oil* is separated from the more volatile constituents of the plant. The common oils are separated by expression. The substances derived from the mineral kingdom are prepared by the common operations of chemistry, as precipitation, crystallization, &c. Hence the necessity that the pharmacopœist should be well versed in the details of practical chemistry. The magnificent progress of this art has purged our Pharmacopœia of many of its useless or incongruous substances, and likewise corrected that evil habit of prescribing which caused the practitioner to combine salts which decomposed each other. At the same time chemistry caused vegetable substances to go very much out of use, at least among those at all influenced by the fashion of the day. For, presuming on their accurate knowledge of our science to interfere with the practitioner of the more difficult one of medicine, some chemists endeavoured to ridicule these august bodies who had compiled the modern Pharmacopœia, because they had not paid sufficient attention to chemical laws. In this impertinent attempt, they were entirely unsuccessful, because all scientific practitioners knew how much depended on those minute operations of mineral or vegetable substances which elude the present knowledge of the chemist; and they saw the folly of trusting to theory, and discarding a medicine which experience showed could cure a disease, merely because it was unscientifically compounded.

But, from whatever source medicines are derived, much of their effect depends on their judicious combination. In the first place, the practitioner must be careful not to combine any minerals in a prescription which are capable of decomposing each other; for, though we have defended the occasional inattention to this rule in learned bodies and on general experience of its utility, it nevertheless ought to be rigorously attended to in forming a prescription. The peculiar affinities of the various salts are easily learnt and remembered. Of the effect of minerals on vegetables we do not know much. We may remark that, generally speaking, alkalies extract more efficiently the properties

of vegetables; on some occasions, acids seem to have a similar effect; but this is uncertain. In the case of opium and some other narcotics, the mineral acids seem to restrain the deleterious effect of the drug. The analysis of vegetables, as pursued by the French chemists, promises to furnish us at some future period with more certain information in regard to the operation of minerals over vegetables; but at present we do not know enough to form any important general information on this head. In the combination of various vegetable products in the same prescription, we have only to look to the medical operation of these substances, because they have rarely any chemical effect on each other. Generally speaking, it is wrong to combine in the same formula medicines which do not operate on the same organs: thus we should not combine diuretics and purges, nor emmenagogues and sudorifics. On the other hand, medicines which do act on the same structure may be combined with the utmost advantage: Thus a small dose of epsom salts, of senna, and buckthorn-juice, in combination, operates much more actively and certainly than a large dose of any one of these drugs. Again; two or three diuretics mixed together will often operate when they have separately failed to produce any effect. But this combination of drugs, so useful to the practitioner, does not succeed effectually if pushed beyond the extent of three or four articles; and it should also be recollected, that, if a simple drug does perform its office, it is wrong to mix it with others, because we thereby fail to improve that part of medicine we know so little of; viz. the particular effect of particular drugs.

Besides combining medicines for the sake of increasing their force, we sometimes combine them to restrain any *contingent* operation of a drug, which operation is not essential to the cure, and is injurious to the system; as when we combine sulphuric acid with opium, a combination which does not hinder the narcotic effect of the opium, but prevents its stimulating effect, which may do hurt; or when we give opium with calomel, and thus ensure salivation while we restrain diarrhoea. A medicine added to another in the above manner, for the prevention of any unpleasant effect, is called a *corrective*. A medicine which increases the operation of another is called an *adjunct*.

A less important point of consideration in prescribing is to render a medicine more pleasant to the palate of the patient, by syrups, by acids, &c. but, in doing this, we must be careful not to interfere with the operation of the active ingredients, and thus sacrifice an important to a trifling matter. At the same time, so numerous are the formula in common use, that we shall seldom find it necessary to prescribe medicines which cannot absolutely be taken; and at all events we must avoid prescribing medicines which cannot be mechanically united, as acids with oleaginous substances; and so on.

Prescriptions are generally written in the Latin language, which of all others is the most proper, because it is more or less known to the whole world, and because, being less familiar with it than with our own, we both read and write it with peculiar care. The quantities of medicine are not written in Latin, however, but are expressed by signs. Some have strongly urged the propriety of writing the quantities as well as the names of the drugs at full length; but we cannot see that this would be attended with fewer mistakes than the present mode; since the tedium of writing a long word might induce carelessness, and the signs in use are sufficiently clear, and may be rapidly written in the most correct manner. We must except, however, the too close resemblance of the drachm and ounce signs, which cannot be defended. The first sign used in medicine is the *R*, which is commonly supposed to be an abbreviation of *Recipe*, Take, (which word it is now understood to mean in all prescriptions;) but by others is stated to have descended to us from those of the ancients who believed much in sidereal influence, and

and who used it as a sign of some planet, probably Jupiter. The next mark is for the ounce, 3; for the drachm, 3; for the scruple, 9; but, having no mark for grains, we use *gr.* To these we append the number of ounces, drachms, &c. required, (still adhering to old forms,) not in figures, but in Roman numerals; as 3i, one ounce; 3ij, two drachms; 3iij, three scruples, &c. We have also this mark, $\frac{1}{2}$, or $\frac{1}{4}$, for half; and, more recently, \mathfrak{M} for minim, or drop. It is the mark for pound, though seldom used; O for a pint; and \bar{a} , or *ana*, for equal quantities of two or more articles previously mentioned.

Into the mode of preparing drugs we shall not enter, as being generally known to the medical profession through the medium of the first elementary works, and as being of no use to the general reader. The London Pharmacopœia of 1809 contains all that is necessary to be known with regard to the preparation of the drugs therein mentioned; and the mode of preparing those of more recent introduction may be found in *Thompson's Conspectus*, or in *Gray's Supplement*. To those who wish to study the science of pharmacy in a more scientific manner, we strongly recommend the work of *Dr. Paris*, entitled "Pharmacologia."

ALPHABETICAL LIST of the MATERIA MEDICA, With the usual Doses.

The doses given by different practitioners vary so much, that any general table of them must necessarily be imperfect, and can only be expected to guard the young practitioner from error. The quantities are meant for adults; and either of the two quantities here set down, or any intermediate one, may be used as a dose, except when the word *to* is inserted between them, which means, "that the quantity should be gradually raised from the former to the latter," and sometimes it may be carried much beyond it. Some articles, as far as their effects are concerned, may be given at once in much larger quantities, and their dose is rather therefore estimated by convenience, on account of bulk: such, however, it does not appear necessary to distinguish particularly. The same article is often used in different quantities, to produce different effects: such second effects, when they are *emetic* or *cathartic*, are in marked instances accordingly given under the former, with E or C prefixed, as may be instanced in the article *Antimonium tartarizatum*.

Abietis Resina	gr. x	3fs
Abinthium	3j	3j
Acaciæ Gummi	3fs	3ij
Acetum Colchici	3fs	3ifs
— Scillæ	3fs	3ifs
Acidum aceticum	3j	3fs
— benzoicum	gr. x	3fs
— citricum	gr. x	3fs
— mariaticum	\mathfrak{M} x	\mathfrak{M} xl
— nitricum dilutum	\mathfrak{M} x to \mathfrak{M} xl	
— sulphuricum dilutum	\mathfrak{M} x to \mathfrak{M} xl	
Aconiti Folia	gr. j to gr. v	
Æther rectificatus	3fs	3ij
Ærugo	gr. $\frac{1}{2}$ to gr. j	
Allii Radicis Succus	3j	3fs
Aloes spicata Extractum	gr. v	gr. xv
— vulgaris Extractum	gr. v	gr. xv
Alumen	gr. x	3fs
Ammoniacum	gr. x	3fs
Ammoniac Murias	gr. x	3fs
— Carbonas	gr. v	3j
Anethi Semina	gr. x	3j
Anisi Semina	gr. x	3j
Anthemidis Flores	gr. x	3j
Antimonii Oxydum	gr. j	gr. x
— Sulphuretum	gr. x	3fs
— Sulphuretum præcipitatum	gr. j	gr. v
Antimonium tartarizatum	gr. $\frac{1}{2}$	gr. fs
	E	gr. j
		gr. ij

Aqua Anethi	gr. fs to gr. v
— Carui	3j
— Cinnamomi	gr. x to gr. $\frac{1}{2}$
— Fœniculi	gr. x
— Menthæ piperitæ	3fs
— viridis	3fs
— Pimentæ	3fs
— Pulegii	3fs
Argenti Nitras	gr. fs to gr. v
Armoraciæ Radix	3j
Arsenici Oxydum præparatum	gr. $\frac{1}{10}$ to gr. $\frac{1}{2}$
Asari Folia	gr. x
Assafœtidæ Gummi-resina	gr. x
Balsamum Peruvianum	gr. x
— Tolutanum	gr. x
Belladonnæ Folia	gr. fs to gr. v
Benzoinum	gr. x
Bistortæ Radix	gr. x
Cajuputi Oleum	\mathfrak{M} j
Calami Radix	gr. x
Calamina præparata	gr. x
Calumbæ Radix	gr. x
Cambogia	gr. ij
Camphora	gr. iij
Canellæ Cortex	gr. x
Capfici Baccæ	gr. v
Cardamines Flores	3j
Cardamomi Semina	gr. v
Carui Semina	gr. x
Caryophylli	gr. v
— Oleum	\mathfrak{M} j
Cascarillæ Cortex	gr. x
Cassia Pulpa	3fs
Castoreum	gr. v
Catechu Extractum	gr. x
Centaurii Cacumina	gr. xv
Ceraeum	3j
Cinchonæ cordifoliæ Cortex	gr. x
— lancifoliæ Cortex	gr. x
— oblongifoliæ Cortex	gr. x
Cinnamomi Cortex	gr. v
— Oleum	\mathfrak{M} j
Coccus	gr. v
Colchici Radix	gr. j
Colocynthis Pulpa	gr. j
Confectio Amygdalæ	3j
— Aromatica	gr. x
— Aurantii	3j
— Cassia	3j
Confectio Opii	gr. x
— Rosæ caninæ	3j
— Gallicæ	3j
— Scammoneæ	3j
— Sennæ	3fs
Conii Folia	gr. ij to 3j
Contrajervæ Radix	gr. x
Copaiba	3j
Coriandri Semina	3j
Cornu ustum	3fs
Creta præparata	3fs
Croci Stigmata	gr. x
Cumini Semina	3j
Cupri Sulphas	gr. j to gr. v
Cuprum ammoniatum	gr. fs to gr. v
Cuspariæ Cortex	gr. x
Dauci Semina	3j
Decoctum Aloes compositum	3fs
— Cinchonæ	3j
— Cydoniæ	3j
— Dulcamaræ	3fs
— Hordei	3iv
— compositum	3iv
— Lichenis	3j
— Sarsaparillæ	3iv
— compositum	3iv
Decoctum	3iv

Decoctum Senegæ	3fs	3ij	Lavandulæ Flores	9j	3j
— Ulmi	3iv	O. fs	Lauri Baccæ et Folia	gr. x	3fs
Digitalis Folia	gr. fs to gr. iij		Lichen	9j	3j
Dolichi Pubes	gr. v	gr. x	Linum catharticum	3fs	3j
Dulcamaræ Caulis	9j	3i	Liquor Ammoniz	m x	m
Elemi	gr. x	3fs	— Ammoniz Acetatis	3ij	3vi
Extractum Aconiti	gr. j to gr. v		— Ammoniz Carbonatis	3fs	3fs
— Aloes	gr. v	gr. xv	— Antimonij tartarizati	m x	m x
— Anthemidis	gr. x	9j		5j	3ij
— Belladonnæ	gr. j to gr. v		— Arsenicalis	m v	m xij
— Cinchonæ	gr. x	3fs	— Calcis	3ij	O. fs
— — refinosum	gr. x	3fs	— Ferri alkalini	3fs	3j
— Colocynthidis	gr. v	3fs	— Hydrargyri oxymuriatis	3j	3fs
— — compositum	gr. v	3fs	— Potassæ	m x	3fs
— Conii	gr. v	9j	— Potassæ Subcarbonatis	3fs	3fs
— Elaterii	gr. fs	gr. iij	Lytta	gr. fs to gr. iij	
— Gentianæ	gr. x	3fs	Magnesia	3fs	3j
— Glycyrrhizæ	3j	3fs	— Carbonas	3fs	3ij
— Hæmatoxyli	gr. x	3fs	— Sulphas	3j	3i
— Humuli	gr. v	9j	Malva	9j	3j
— Hyoscyami	gr. v to 9j		Manna	3fs	3ij
— Jalapæ	gr. x	9j	Mastiche	gr. x	3fs
— Opii	gr. fs to gr. v		Marrubium	9j	3j
— Papaveris	gr. ij to 9j		Mel Boracis	3j	5ij
— Rhei	gr. x	3fs	— despumatum	3j	3j
— Sarsaparillæ	gr. x	3j	— Rosæ	3j	3fs
— Taraxaci	gr. x	5j	Mentha piperita	gr. x	5j
Ferri Sulphas	gr. j to gr. v		— viridis	gr. x	3j
— Carbonas	gr. ij to gr. x		Menyanthes	3fs	3j
Ferrum ammoniatum	gr. iij	gr. xv	Mezerei Cortex	gr. j	gr. x
— tartarizatum	gr. x	3fs	Mistura Ammoniaci	3fs	3j
Filicis Radix	5j	3fs	— Amygdalæ	3j	O. fs
Fœniculi Semina	9j	3j	— Affasctidæ	3fs	3i
Galbani Gummi-refina	gr. x	3fs	— Camphoræ	3fs	3ij
Gentianæ Radix	gr. x	5j	— Cornu usti	3iv	O. fs
Glycyrrhizæ Radix	3fs	3j	— Cretæ	3j	3ij
Granati Cortex	9j	3j	— Ferri Composita	3j	to 3ij
Guaiaci Refina	gr. x	5fs	— Guaiaci	3j	3ij
Hæmatoxyli Lignum	9j	3j	— Moschi	3fs	3ij
Hellebori foetidi Folia	gr. x	3j	Moschus	gr. ij	9j
— nigri Radix	gr. x	3j	Mucilago Acaciæ	3j	3j
Humuli Strobili	gr. x	9j	— Amyli	3j	3j
Hydrargyri Nitrico-oxydum	gr. fs	gr. ij	Myristicæ Nuclei	gr. v	gr. x
— Oxydum cinereum	gr. ij	gr. x	Myrrha	gr. x	3j
— — rubrum	gr. fs	gr. ij	Oleum Amygdalæ	3fs	3j
— Oxymurias	gr. j to gr. fs		— Anisi	m v	m x
— Submurias	gr. fs	gr. ij	— Anthemidis	m v	m x
— Submurias	gr. v	gr. xv	— Carui	m j	m v
— Sulphuretum rubrum	gr. x	3fs	— Caryophylli	m iij	m vj
Hydrargyrus cum Creta	gr. x	3fs	— Cinnamoni	m j	m iij
— præcipitatus albus	gr. v	gr. x	— Juniperi	m ij	m x
— purificatus	3fs	3iv	— Lavandulæ	m j	m v
Hyoscyami Folia	gr. v	gr. xv	— Lini usitatissimi	3fs	3j
Jalapæ Radix	gr. x	3fs	— Menthæ piperitæ	m j	m iij
Infusum Anthemidis	3fs	3iv	— — viridis	m ij	m v
— Armoraciz compositum	3fs	3iv	— Origani	m j	m iij
— Aurantii compositum	3fs	3ij	— Pimentæ	m ij	m v
— Calumbæ	3fs	3iv	— Pulegii	m j	m v
— Caryophyllorum	3fs	3iv	— Ricini	3ij	3j
— Cascarillæ	3fs	3iv	— Rosmarini	m ij	m v
— Catechu	3fs	3iv	— Succini	m x	3fs
— Cinchonæ	3fs	3iv	— sulphuratum	m x	3fs
— Cuspariæ	3fs	3iv	— Terebinthinæ rectificatum	m x	3fs
— Digitalis	3i	3ij	Olibanum	gr. x	3fs
— Gentianæ compositum	3fs	3iv	Olivæ Oleum	3fs	3j
— Lini	3fs	O. fs	Opium	gr. fs	gr. v
— Quassiz	3fs	3iv	Opoponax	gr. x	3fs
— Rhei	3fs	3iv	Origanum	gr. v	9j
— Rosæ	3fs	O. fs	Oxymel	3j	3j
— Sennæ	3fs	3iv	— Scillæ	3fs	3ij
— Simaroubæ	3fs	3iv	Petroleum	m x	3j
Ipecacuanhæ Radix	gr. fs	gr. ij	Pilulæ Aloes compositæ	gr. x	gr. xxv
— — E	gr. v	3fs	— cum Myrrha	gr. x	9j
Juniperi Baccæ	3fs	3j	— Cambogiæ compositæ	gr. x	9j
Kino	gr. x	3fs	— Ferri cum Myrrha	gr. x	9j
					Pilulæ

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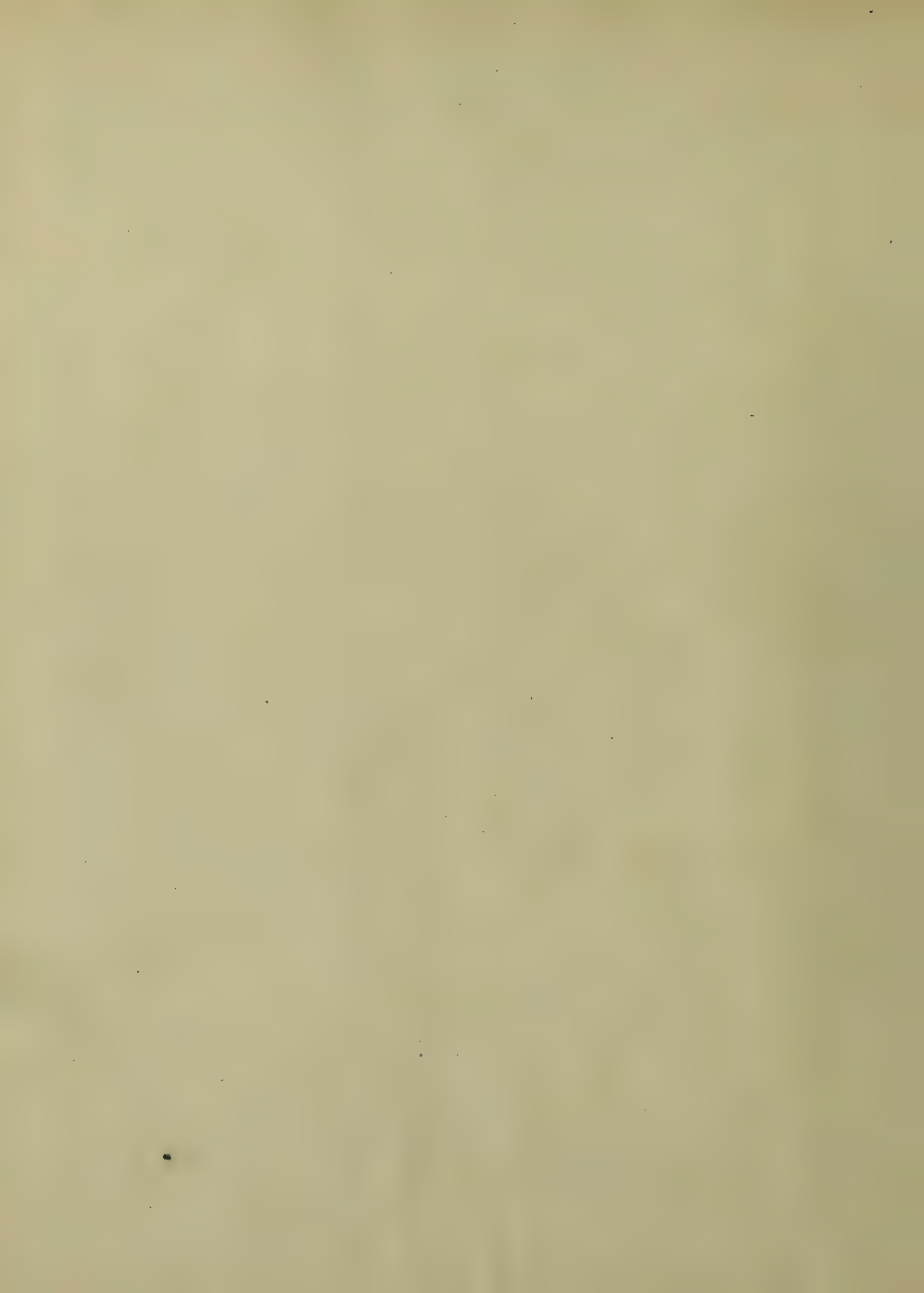
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Pilulæ Galbani compositæ	gr. x	3fs	Spiritus Carui	3j	3fs
— Hydrargyri	gr. v	3j	— Cinnamomi	3j	3fs
— Submuriatis	gr. v	gr. x	— Juniperi compositus	3j	3fs
— Saponis cum Opio	gr. iij	gr. x	— Lavandulæ	3j	3fs
— Scillæ compositæ	gr. x	3j	— — compositus	3j	3fs
Pimentæ Baccæ	gr. v	3j	— Menthæ piperitæ	3j	3fs
Piperis longi Fructus	gr. v	3j	— — viridis	3j	3fs
— nigri Baccæ	gr. v	3j	— Myristicæ	3j	3fs
Plumbi acetæ	gr. fs to gr. ij	3fs	— Pimentæ	3j	3fs
Porri Radicis Succus	3j	3fs	— Pulegii	3j	3fs
Potassæ Acetas	3j	3fs	— Rosmarini	3j	3fs
— Carbonas	gr. x	3fs	Spongia usta	3j	3fs
— Nitras	gr. x	3fs	Stannum	3j	3fs
— Subcarbonas	gr. x	3fs	Staphisagriæ Semina	gr. iij	gr. x
— Sulphas	3j	3fs	Styracis Balsamum	gr. x	3fs
— Sulphuretum	gr. v	gr. xv	Succinum	3fs	3j
— Superfulphas	3j	3ij	Sulphur lotum	3fs	3ij
— Supertartas	3j	3j	— præcipitatum	3fs	3ij
— Tartas	3j	3j	Syrupi	3j	3ij
Pulegium	gr. x	3j	Tabaci Folia	gr. fs	gr. v
Pulvis Aloes compositus	gr. x	3j	Tamarindi Pulpa	3fs	3ij
— Antimonialis	gr. v	gr. x	Taraxaci Radix	3fs	3j
— Cinnamomi compositus	gr. v	gr. x	Terebinthina Canadensis	3j	3j
— Contrajervæ compositus	gr. xv	3fs	— Chia	3j	3j
— Cornu usti cum Opio	gr. xv	3fs	— vulgaris	3j	3j
— Cretæ compositus	3fs	3j	— Oleum	3j	3fs
— Cretæ compositus cum Opio	3j	3ij	Testæ præparatæ	3fs	3ij
— Ipecacuanhæ compositus	gr. v	3j	Tinctura Aloes	3fs	3j
— Kino compositus	gr. v	3j	— — composita	3fs	3ij
— Scammonæ compositus	gr. x	3j	— Affasætida	3fs	3ij
— Sennæ compositus	3j	3j	— Aurantii	3fs	3ij
— Tragacanthæ compositus	gr. x	3j	— Benzoini composita	3fs	3ij
— Pyrethri Radix	gr. iij	gr. x	— Calumbæ	3fs	3ij
Quassia Lignum	gr. v	3fs	— Camphoræ composita	3fs	3fs
Quercus Cortex	gr. x	3fs	— Capfici	3fs	3fs
Rhamni Baccæ	3j	3ij	— Cardamomi	3j	3fs
Rhei Radix	gr. x	3fs	— — composita	3fs	3fs
Rosæ caninæ Pulpa	3j	3j	— Cascarillæ	3fs	3ij
— centifoliæ Petala	3j	3j	— Castorei	3fs	3ij
— Gallicæ Petala	3j	3j	— Catechu	3fs	3ij
Rosmarini Cacumina	gr. x	3fs	— Cinchonæ	3j	3fs
Rubiæ Radix	3fs	3j	— — composita	3j	3fs
Rutæ Folia	gr. xv	3ij	— Cinnamomi	3j	3ij
Sabinæ Folia	gr. x	3fs	— — composita	3fs	3ij
Sagapenum	gr. x	3fs	— Digitalis	3fs	3ij
Salicis Cortex	gr. x	3fs	— Ferri ammoniacalis	3fs	3ij
Sapo durus	gr. v	3fs	— Muriatis	3fs	3ij
Sarsaparillæ Radix	3j	3j	— Gentianæ composita	3j	3ij
Sassafras Lignum	3j	3j	— Guaiaci	3j	3ij
Scammonæ Gummi-resina	gr. v	3j	— — ammoniata	3j	3ij
Scillæ Radix recens	gr. v	gr. xv	— Hellebori nigri	3fs	3j
— exsiccata	gr. j	gr. iij	— Humuli	3fs	3j
Senegæ Radix	3j	3j	— Hyoscyami	3fs	3j
Sennæ Folia	3j	3j	— Jalapæ	3j	3fs
Serpentariæ Radix	gr. x	3fs	— Kino	3fs	3ij
Simaroubæ Cortex	gr. x	3fs	— Lyttæ	3fs	3ij
Sinapis Semina	3j	3fs	— Myrrhæ	3fs	3j
Soda tartarizata	3j	3j	— Opii	3fs	3fs
— Carbonas	gr. x	3fs	— Rhei	3fs	3fs
Sodæ Boras	gr. x	3fs	— — composita	3fs	3fs
— Subcarbonas	gr. x	3fs	— Scillæ	3fs	3j
— — exsiccata	gr. v	gr. xv	— Sennæ	3j	3j
— Sulphas	3j	3j	— Serpentariæ	3fs	3ij
Spartii Cacumina	3j	3j	— Valerianæ	3fs	3ij
Spigeliæ Radix	gr. x	3fs	— — ammoniata	3fs	3ij
Spiritus Ætheris aromaticus	3fs	3j	— Zingiberis	3j	3ij
— compositus	3fs	3j	Tormentillæ Radix	gr. x	3fs
— nitrici	3fs	3j	Toxicodendri Folia	gr. ij	gr. xv
— sulphurici	3fs	3j	Tragacantha	gr. x	3j
— Ammonia	3fs	3j	Tussilago	3fs	3j
— compositus	3fs	3j	Valerianæ Radix	3j	3ij
— fetidus	3fs	3j	Veratri Radix	gr. ij	gr. v
— succinatus	3fs	3j	Vinum Aloes	3fs	3j
— Anisi	3fs	3fs	— Ferri	3j	3fs
— Armoraciæ compositus	3fs	3fs	— Ipecacuanhæ	3fs	3j

Vinum Ipecacuanhæ	E	3ij	3fs
— Opii		℥x	3fs
Ulmæ Cortex		℥j	3j
Uvæ Uræ		gr. x	3j
Zinci Oxydum		gr. iij	gr. x
— Sulphas		gr. j	gr. v
— E		gr. xv	3fs
Zingiberis Radix		gr. v	3fs.

As the foregoing doses are intended for the adult patient, we shall here subjoin Gaubius's Table of the proportionate doses for children; though it will immediately occur to the judicious practitioner, that the quantities must vary, not with age only, but with sex, constitution, and still more with the intensity of the disease.

For an Adult	—	—	1	e. g.	3j
From 21 Years to 14	—	—	3/4		℥ij
14	7	—	3/8		3fs
7	4	—	3/16		℥j
4	—	—	1/4		gr. xv
3	—	—	1/8		3fs
2	—	—	1/16		gr. viij
1	—	—	1/32		gr. v.

In making our acknowledgments to the authors from whose works we have derived the large body of information compressed into this article, we must be excused for omitting the names of a multitude of writers who have merely furnished a few insulated facts or cursory observations. We must be excused also from inserting the names of some whose labours have afforded us information, lest we should attribute to any one opinions which he does not hold, but which our own error may have caused us to attribute to him. Lastly, we hope to stand excused for some whom we have inadvertently forgotten.

The historical part of this Treatise has been chiefly compiled from the works of Sprengel, Freind, Haller, Miller, Le Clerc, Blumenbach, Schultze, &c. and from Good's History of Medicine.

In the history of the present state of medicine, we have employed Sir Charles Morgan's Appendix to Lady Morgan's "Italy." Broughton's Letters from Portugal. Clarke's Notes on the Hospitals of Italy, France, &c. The Revue Medicale. Journal des Débats; and several excellent treatises and extracts in the Quarterly Journal of Foreign Medicine, 1820, 21. M. Esquirol's Memoire présenté au Ministre de l'Interieur. Clarke on the Climate and Diseases of the South of France and Italy. Bianchi's translation of Chani Zadek Mehemmed Ata-Oullah, a work lately published in Turkey on Surgery and Anatomy.

For the history of Nosology we are entirely indebted to Dr. Good, as well as for the Classification itself. And we here again beg leave to tender to this gentleman our admiration of his philological knowledge. It cannot be supposed, from the general tenor of our views, but that we look forward to a system of medicine which should be very much released from the trammels of a never-ending list of names; but, at the same time, as far as grand divisions and an accurately-constructed nomenclature are regarded, we humbly offer our opinion, that Dr. Good has left little to be wished. As a piece of medical information, we cannot avoid mentioning that when nine-tenths of this article were published, Dr. Good gave to the world a large work, entitled the Study of Medicine, which is intended to render complete his labours in this science. We have not yet seen it; but report speaks very favourably of its merits.

The general principles of Diagnosis have been for the most part taken from Dr. Marshall Hall's work "On Diagnosis."

The short sketch of General Pathology is drawn from the well-known works of Parry, Nicholl, and Broussais.

The Pathological Anatomy interspersed over a large portion of the article, we have taken from the systematic works of Baillie, Farre, Laennec, and Broussais; or from practical monographs.

The authors whom we have consulted in the class *Cœliaca*, or diseases of the digestive function, are—Daubenton, Abernethy, Philip, Hall, Broussais, Parry, Hunter, Hamilton, and J. Johnson; Baillie, White, Coley, Sberwin, and Arnott, on changes of structure in the intestinal tube; J. Johnson, Bayle, Farre, and Herberden, on hepatic and dysenteric maladies; Brera, Baillie, Hooper, and Chamberlaine, on worms.

In the class *Pneumatica*, or diseases of the respiratory function, we have borrowed much from Badham, Hastings, Bree, and Alcock.

For the order *Pyrethica*, we are indebted to Cullen, Darwin, Bateman, Clutterbuck, Armstrong, Jackson, Frank, Nicholls, Park, Fordyce, J. Johnson, and Baneroff.

The nature and treatment of *Empresma*, or internal inflammations, have been discussed at full, but from too many sources to admit of enumeration. With regard to inflammation of the serous membrane, we cannot avoid directing the reader's attention to the extracts from Broussais, Pemberton, Barou, and Laennec. And, as to the numerous diseases of the heart, the labours of Corvisart, Laennec, and Portal, have mainly assisted our descriptions.

Among *Dyssthetica*, or diseases from general morbid habit of body, the disease *Phthisis*, or consumption, is enriched by the observations of Scot, Beddoes, Southey, Mansford, and Duncan, among practical writers; and the still more valuable ones of Baillie, Bayle, and Laennec, in relation to necrotomy.

The class *Genetica* is composed of a very compressed analysis of the whole of Dr. Mansfield Clarke's excellent work "On the Diseases of Females;" and by various remarks from Rowley and others of the old school, in which these diseases were so much considered.

The genus *Hydrops*, or dropsy, is deduced from the writings of Cullen, Parry, Blackall, Laennec, and Scarpa. This disease, as it affects the head under the form of *Hydrops capitis*, is treated of conformably with the opinions and observations of Yeats, Cheyne, and Gölis.

Our account of *Calculus* Diseases is taken from Marcet, Henry, Wollaston, Majendie, and Prout.

The whole description of *Cutaneous* Diseases is taken almost literally from the works of Willan and Bateman, with the exception of the therapeutical part, which has received some small improvements since the writings of those accurate and judicious writers.

Among the more compendious systems from which we have derived assistance, we have to mention the contemporary *Cyclopædia* of Dr. Rees, and the *Encyclopædia Britannica*; the French "*Dict. des Sciences Médicales*;" the Medical Dictionary of James, and the more recent and excellent one of Dr. Parr.

Lastly, we must not forget to mention our obligations to the Medico-chirurgical Review, to the Quarterly Journal of Foreign Medicine, the Edinburgh Medical Review, and the London Medical and Physical Journal, for several excellent analyses, and for some recent and curious cases.

